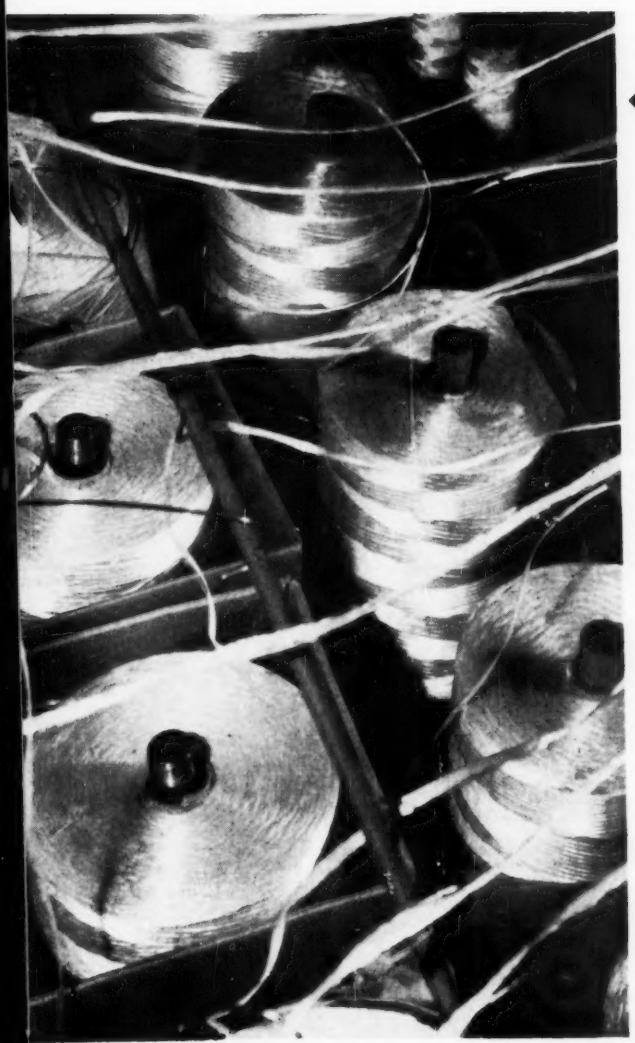
A McGRAW-HILL PUBLICATION

Chemical Week



New synthetic fibers face uphill battle . p. 23

U.S. plant investment overseas booms. New McGraw-Hill survey tells how much . . p. 25

How can small labs compete for researchers? Higher pay, greater freedom . . . . p. 35

New package-plant safety twist: Builder sponsors conference for customers . . . p. 51

More synthetic glycerine coming as Olin Mathieson enters field. Here's the picture . p. 75

STEVENS RICE
UNIVERSITY MICROFILMS IN
313 N 1ST ST
ANN ARBOR MICH

August 15, 1959

New automatic monitor guards the consistent purity of

Westvaco® CHLORINE

Among the most modern devices for controlling chlorine cells is Westvaco's automatic chromatographic analyzer. Keeping a constant eye on the chlorine stream, it makes continuous quantitative analyses just prior to liquefaction to detect and record the contaminating presence of inert gases.

This is another of the careful quality controls installed during our recent multimillion-dollar plant expansion and modernization program. It's one more reason why we are now supplying more and better chlorine than ever before.

From our strategic location at South Charleston, W. Va. we are in excellent position to give you fast, dependable service throughout the East, mid-South and Midwest. Let us quote on your needs now.

fmc
FOOD MACHINERY AND CHEMICAL CORPORATION ®

Putting Ideas to Work

FOOD MACHINERY AND CHEMICAL CORPORATION

Westvaco Chlor-Alkali Division

General Sales Offices:
161 E. 42nd STREET, NEW YORK 17

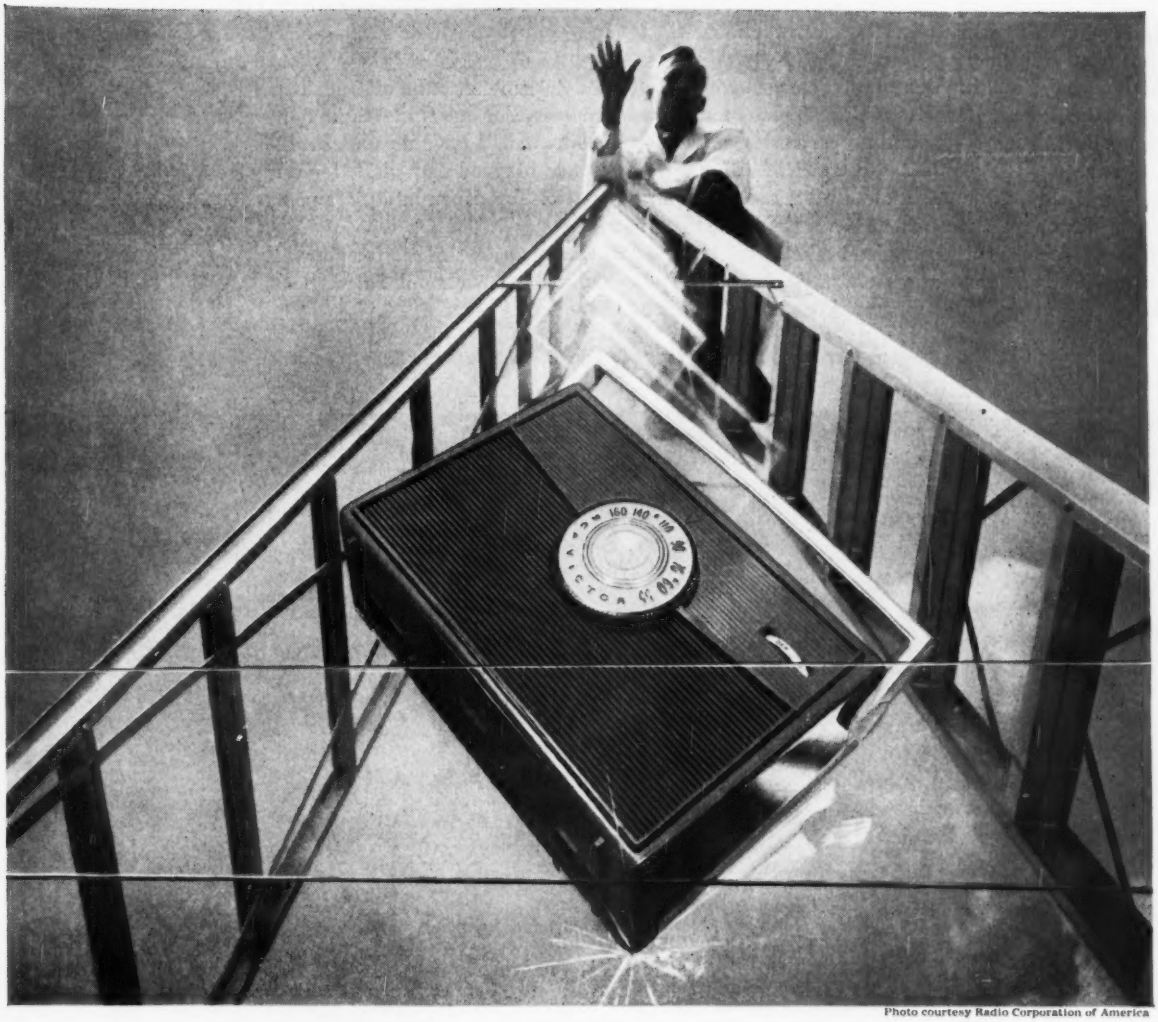


Photo courtesy Radio Corporation of America

Secret of a Smashing Success

Dropped 10 feet—this polystyrene radio case bounced, clattered, *but did not break.* It did not chip or crack—did not show a single mark of its high dive. Dramatic evidence, wouldn't you say, of the remarkable strength being built into modern plastics.

How to make tougher polystyrene—the material used in most radio cases—was long a priority project with all its manufacturers. Concentrated research and development finally solved the problem. The secret of success for many producers: combining the product with PLIOFLEX rubber.

Plioflex, with its unusually light color, high uniformity and particular physical properties, was selected over many other possible modifying materials. Experience has proved it to be the best choice to meet the exacting demands of the plastics industry.

Making more durable, more salable radio cases is but one of the many uses for the many types of PLIOFLEX. How can PLIOFLEX bring new success to your operation? For full details—including latest *Tech Book Bulletins*—write Goodyear, Chemical Division, Dept. H-9417, Akron 16, Ohio.

GOODYEAR

CHEMICAL DIVISION

Plioflex—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

DETERGENTS? YOU CAN MAKE THEM BETTER WITH GULF PROPYLENE POLYMERS

For detergents that "suds up" at the flick of a housewife's hand—and *retain* their suds—specify Gulf propylene tetramer.

Whether you're making household detergents or industrial detergents or lube oil additives, you can make them better with Gulf propylene tetramer and trimer. For one thing, these polymers have low APHA colors and no peroxides so your end products will have no undesirable color. For another, they contain only traces of sulfur so you won't be plagued with objectionable odors. In addition, these polymers are backed by Gulf's reputation for dependability, and by Gulf's technical experience which is always at your service.

Why don't you try Gulf propylene trimer and tetramer in your process and see for yourself what they will do? For information, write or phone Petrochemicals Department Sales Office, Gulf Oil Corporation, 360 Lexington Avenue, New York 17, New York.

GULF

Quality Chemicals from Petroleum

Benzene · Ethylene · Isooctyl Alcohol · Propylene Trimer and Tetramer · Sulfur · Toluene

Chemical Week

TOP OF THE WEEK **AUGUST 15, 1959**

Little Free "Trade Area" formed by seven nations not included in first "Common Market." Impact on CPI ..... **p. 41**

Cyanoethylation produces better insulating paper; it's the process's first big workout ..... **p. 61**

And now, man-made pigeon-blood rubies, as natural-vs.-synthetic gem battle gets hotter ..... **p. 70**

Reheis will broaden product line. Here's what's ahead for big maker of aluminum specialty chemicals ..... **p. 81**

13 VIEWPOINT
Current Congressional battle over labor laws obscures first need—amendment of Taft-Hartley Act.

13 OPINION

15 MEETINGS

19 BUSINESS NEWSLETTER

23 Producers roll out promotional artillery as "fourth generation" of man-made fibers go commercial this fall.

24 New imbroglio over Mexican sulfur: proxy fight is on as Texas International Sulphur management clashes with ex-chairman in court battle.

25 How fast is the CPI's overseas business growing? New McGraw-Hill survey reports foreign investments, foreign sales, and export sales.

26 Three chemical firms reveal financing plans: Hooker will sell debentures, Air Products will market stock, Cary Chemicals to offer debentures and stock.

26 Lithium Corp. of America aims at substantial operating economies by moving all manufacturing to North Carolina, headquarters to New York area.

31 WASHINGTON NEWSLETTER

35 RESEARCH
How can small research organizations compete for scientific manpower? By boosting researchers' total compensation, giving them more freedom.

41 ADMINISTRATION
Seven European nations form second free-trade area as ploy to gain entry into first.

51 PRODUCTION
Builder of package-plants puts a new twist into safety education, holds a conference for plant buyers.

57 TECHNOLOGY NEWSLETTER

61 ENGINEERING
Cyanoethylation finally goes commercial, as GE researchers find right combination of process improvements, product economics.

67 MARKET NEWSLETTER

70 SALES
Hot battle rages within jewelry industry as man-made gems provide tougher competition to natural stones.

75 MARKETS
Olin Mathieson will build synthetic glycerine plant, will become third producer of a polyol that's already in oversupply.

81 SPECIALTIES
Almost unknown to general public, Reheis Co. has sold stock on open market. Here are its plans for becoming better known.

86 BUSINESS BENCHMARKS

43,466 copies of this issue printed

Vol. 85
No. 7

Chemical Week is published weekly by McGraw-Hill Publishing Co., Inc., 330 W. 42nd St., New York 36, N. Y. Place of publication: 3rd and Hunting Park Ave., Philadelphia 40, Pa. Second-class postage paid at Philadelphia. Subscription: $3/year in U.S.A. Send subscription correspondence and change of address to Fulfillment Manager, Chemical Week. Please see page 7 for subscription requirements.

Postmaster: Please send Form 3579 to Chemical Week, 330 West 42nd St., New York 36, N. Y.

Newest from National Lead Research . . . INVIN* 85

unique, balanced stabilizer especially developed to:

1

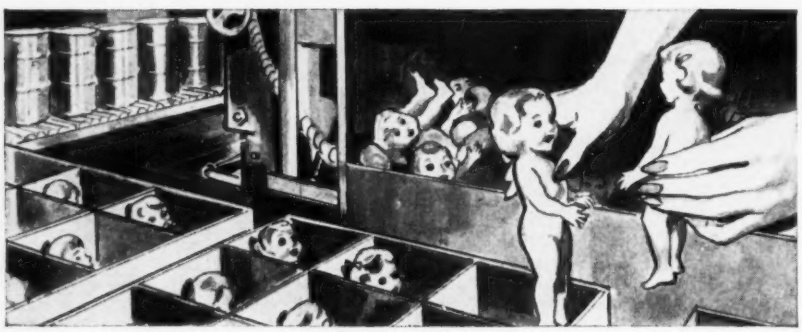
Make better plastisols

- New lows in initial viscosity
- Minimum buildup of viscosity on aging
- Improved air release

2

Make better finished products

- New highs in heat and light stability
- High resistance to sulfide staining



National Lead chemical research improves performance of many other vinyl products

National Lead chemical research develops stabilizers to improve all commercial vinyls. There are special stabilizers designed for electrical insulation, garden hose, stereo records, floor tile, strip coatings, upholstery sheeting, shower curtains. National Lead also has gelling agents which control sag, run-off and fabric penetration of plastisols, organosols.

For more about INVIN 85 stabilizer and other chemical developments from National Lead Company, check and mail coupon below. Technical help in their application is yours on request.

NATIONAL LEAD COMPANY, 111 Broadway, New York 6, N. Y. • *In Canada:* Canadian Titanium Pigments Limited, 1401 McGill College Ave., Montreal KC-3439-W

Gentlemen: Please send literature checked below on the chemicals developed by National Lead Research.

- **Folders on Stabilizers:**
  - ☐ On INVIN* 85 stabilizer
  - ☐ On stabilizers for other vinyl products (specify)_____
- **Folders on Gelling Agents:**
  - ☐ For gelling plastisols, organosols

Name_____ Title_____

Firm_____

City_____ State_____

*TRADEMARK

A Chemical Development of **National Lead Company**

111 Broadway, New York 6, N. Y.

KRAFT BAG CORPORATION, through correct construction of your multiwall shipping sacks, will reduce seepage and spoilage of contents while minimizing your shipping and storage problems.

If your product fits into a bag –
let us make the bag to fit your product!

KRAFT BAG CORPORATION

Gilman Paper Company Subsidiary

630 Fifth Ave., N.Y. 20, N.Y. • Daily News Bldg., Chicago 6, Ill.

Integrated mills at St. Marys, Georgia and Gilman, Vermont

Gilman PAPER CO.
• St. Marys Kraft Corp.
• Command Toga Div.
• The Lillwood Corp.
• Kraft Bag Corp.

CW

Our Newest KRAFTPACKER

Open Mouth Bag Filling Machine provides maximum accuracy and speed. May we tell you about our stainless steel models? Remarkable in performance. Surprisingly low in price.

☐ We are interested in improving our bag.
☐ We are interested in your Kraftpacker.

NAME OF COMPANY_____

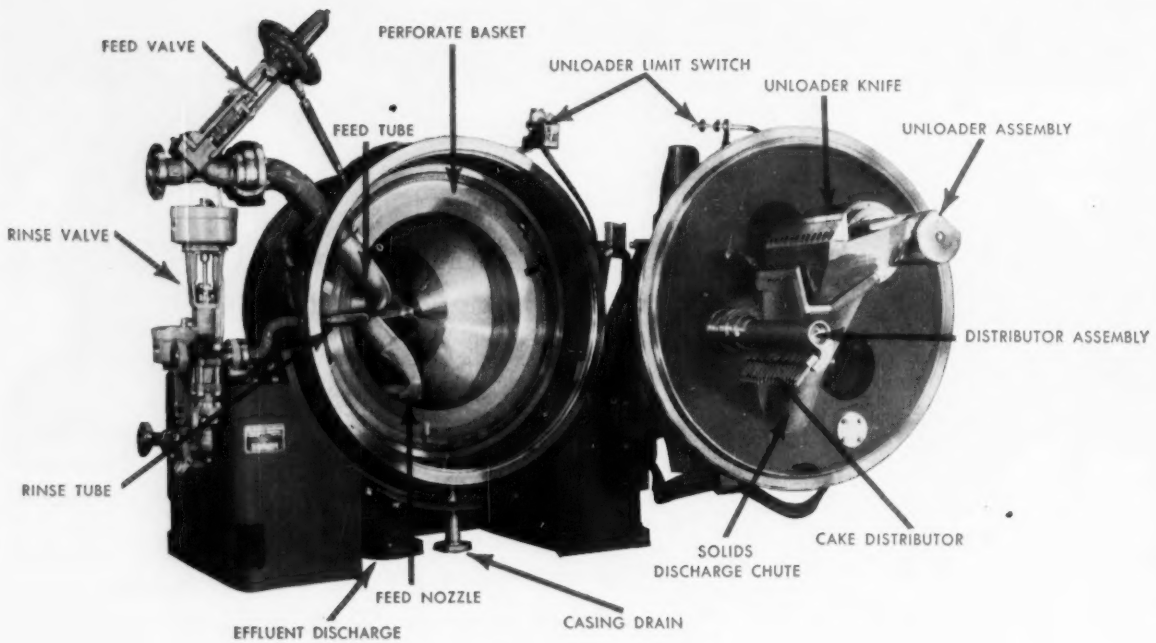
ADDRESS_____

CITY_____ ZONE____ STATE_____ PRINCIPAL_____

PRODUCT MFD._____

SHARPLES C-41 SUPER-D-HYDRATOR

The Advanced Design Centrifuge for High Capacity Deliquefication of Inorganic and Organic Solids



The C-41 is designed to load and unload the solids as quickly as process requirements permit; power requirements do not limit the capacity of this centrifuge.

To accomplish this end, a very special kind of ruggedness is built into the centrifuge—a quick acting ruggedness that makes it possible to load a crystal cake of 300 to 400 pounds at 1250 rpm in 6 to 12 seconds; and to unload the same 300-400 pound cake into the discharge chute in less than one and one half seconds!

Among other features, the C-41 offers flexibility of "chemical treatment" rinses so essential for extra high purity and dryness as required for example, by the polyolefins.

All the details in Bulletin 1286 just off the press.
Ask your local Sharples Office, or write direct.

THE SHARPLES CORPORATION
Centrifugal and Process Engineers
2300 WESTMORELAND STREET / PHILADELPHIA 40, PENNSYLVANIA
NEW YORK · PITTSBURGH · CLEVELAND · DETROIT · CHICAGO · HOUSTON · SAN FRANCISCO · LOS ANGELES · ST. LOUIS · ATLANTA
Associated Companies and Representatives throughout the World

Chemical Week

Wallace F. Traendly ..... Publisher
Sidney D. Kirkpatrick ..... Editorial Director

Howard C. E. Johnson ..... Editor-in-Chief

Ralph R. Schulz ..... Managing Editor
William Olcott ..... Assistant Managing Editor
J. Robert Warren ..... Assistant Managing Editor
Donald P. Burke ..... Associate Editor
Anthony J. Piombino ..... Associate Editor

DEPARTMENTS

Administration .... Cooper R. McCarthy, *editor;* Leo J. Northart
Business News . Homer Starr, *editor;* Bruce Bendow; Jane B. Munger
Engineering ..... Kenneth C. Wilsey, *editor;* Philip A. Untersee
Markets ..... Jorma Hyypia, *editor;* Philip A. Cavalier
Production ..... Herbert C. Short, *editor*
Reports ..... Vincent L. Marsilia, *editor*
Research ..... Joseph F. Kalina, *editor;* Sanford J. Durst
Sales ..... John M. Winton, *editor;* Carl A. Hiester
Specialties ..... Richard J. Callahan, *editor*
Copy ... William Mullinack, *editor;* Henry S. Gordon, John Philbin
Art ..... Robert T. Martinott, *director;* Richard P. Kluga, Dolores Able
Buyers' Guide ..... E. L. Sisley, *editor;* Betsy L. Emery

REGIONAL EDITORS

Far West . Emil J. Mikity, San Francisco
Southwest ..... James A. Lee, Houston
Midwest ....T. Peter Forbath, Chicago

NATIONAL AND WORLD NEWS

Economics ..... Dexter M. Keezer
Manager, News Bureaus ..... John Wilhelm

Atlanta ..... B. E. Barnes
Chicago ..... Stewart Ramsey
Cleveland ..... Arthur Zimmerman
Dallas ..... Marvin Reid
Detroit ..... Donald MacDonald
Los Angeles ..... Kemp Anderson, Jr.
San Francisco ..... Jenness Keene
Seattle ..... Ray Bloomberg
Washington ..... George B. Bryant, Jr.
Correspondents in 75 principal cities.

Beirut ..... O. M. Marashian
Bonn ..... Morrie Helitzer
Caracas ..... John Pearson
London ..... John Shinn
Melbourne ..... Alicja Grobtuch
Mexico City ..... Peter Weaver
Moscow ..... Robert Gibson
Paris ..... Robert E. Farrell
Tokyo ..... Sol Sanders
Correspondents in 64 principal cities.

Robert S. Muller ..... Advertising Sales Manager

Business Department ..... Alvin J. Babkow, *manager*
Sales Promotion Department ..... Fred E. Lesner, *manager*
Market Service Manager ..... Margaret J. Swikart
Advertising Makeup ..... Robert L. Maier
Advertising Salesmen ..... See Adv. Index, p. 84

Paul W. Erb ..... Circulation Manager
Frances Regan ..... Reprints

AUGUST 15, 1959 **Vol. 85, No. 7**

Chemical Week (including Chemical Specialties and Chemical Industries) is published weekly by McGraw-Hill Publishing Co., James H. McGraw (1860-1948), founder. EXECUTIVE EDITORIAL CIRCULATION and ADVERTISING OFFICES: McGRAW-HILL BUILDING, 330 West 42nd St., New York 36, N.Y. See panel below for directions regarding subscriptions or change of address. Donald C. McGraw, President; Joseph A. Gerardi, Executive Vice-President; L. Keith Goodrich, Vice-President and Treasurer. John J. Cooke, Secretary; Nelson Bond, President, Publications Division; Harry L. Waddell, Senior Vice-President; Ralph B. Smith, Vice-President and Editorial Director; Joseph H. Allen, Vice-President and Director of Advertising Sales; A. R. Venezian, Vice-President and Circulation Coordinator.

Subscriptions to Chemical Week are solicited from management men in the Chemical Process industries in administration, production and plant operation, design and construction, research and development, sales and purchasing. Position, company connection and nature of company's business products and approximate number of employees must be indicated on subscription application. Send to address shown in panel below.

United States and United States possessions subcription rate for individuals in the field of the publication. $3 per year; single copies, 50¢. Foreign subscription rates per year: Canada, $4; other Western Hemisphere countries $15; all others $25, payable in advance. Printed in U.S.A. Title registered in U.S. Patent Office.

© Copyright 1959 by McGraw-Hill Publishing Co., Inc. All rights reserved. **Unconditional Guarantee:** the publisher, upon direct request from any subscriber to our New York office, agrees to refund the part of the subscription price applying to copies not yet mailed.

Send subscription correspondence and change of address to Fulfillment Manager, Chemical Week, 330 West 42nd St., New York 36, N. Y. Subscribers should notify Fulfillment Manager promptly of any change of address, giving old as well as new address, and including postal zone number, if any. If possible enclose an address label from recent issue of Chemical Week. Please allow one month for change to become effective.

THE BUSINESS MAGAZINE OF THE CHEMICAL PROCESS INDUSTRIES

versatile

TRI SOD- IUM PHOS- PHATE CHLORINATED

it does just about everything a detergent compounder's trade asks for in a "3-way cleanser"

As a bactericide and disinfectant, Blockson's TSP Chlorinated is tops. Ditto as a bleaching-sanitizing cleanser. Encore as a deodorizing agent. TSP Chlorinated is a double salt of Trisodium Phosphate and Sodium Hypochlorite. Available chlorine content over 3.25%. Sold under private label or as an adjunct for compounded cleansers. Write for sample, technical bulletin, prices. Stocked by all Blockson jobbers.

OLIN MATHIESON CHEMICAL CORPORATION
BLOCKSON

BLOCKSON CHEMICAL COMPANY
JOLIET, ILLINOIS
Division of Olin Mathieson Chemical Corporation

HAVE YOU TRIED THIS THICKER THICKENER?

New...Nonionic...High Efficiency...Water Soluble

NATROSOL® 250—Hercules hydroxyethyl cellulose—has wide utility as a thickener and stabilizer in a variety of water-based systems—from emulsion paints and latex coatings to vinyl polymerization reactions and burn out binder compositions. It may be useful to you.

It is available in an extra-high viscosity grade (20,000 cps. at 2% in water), as well as in the regular lower-viscosity types. And, it is granular in form, dissolving readily in water of any temperature to give clear, haze-free solutions.

Since it is nonionic, NATROSOL 250 has wide tolerance for salts, acids, alkalies, and alcohols as well. It imparts good brushing and leveling characteristics, and thus contributes positively to the performance of the finished paint formulation.

The high-viscosity types of NATROSOL 250 are used for thickening and pigment suspension; the lower-viscosity types as protective colloids, and as stabilizers in emulsion polymerization.

If you have not already tried this easy-to-use, stable, high-efficiency colloid, may we send you a one-pound trial sample of the viscosity grade of NATROSOL 250 you need?

Virginia Cellulose Department

HERCULES POWDER COMPANY

INCORPORATED

Wilmington, Delaware

New York · Detroit · Chicago · San Francisco · Los Angeles

VX59-1

Keys to better catalysis

. . . NORTON Ceramic Catalyst Carriers

In modern chemical and petrochemical process reactions, very often the choice of proper catalyst carriers is as critical a factor as selection of the catalysts themselves. And time and again, NORTON Ceramic Catalyst Carriers have proved the *best* choice both for efficiency and economy.

It's more than just a question of a quality product. There's a personal equation involved — the Norton Man. He brings to chemical engineers the benefits of NORTON COMPANY'S years of experience in the chemical and petrochemical fields as well as the end products of its advanced manufacturing and quality control methods. He *understands* the problems involved. And, backed by NORTON COMPANY'S extensive research and engineering facilities, he's well qualified to help in their solution.

Whatever the feedstock or thermal conditions involved . . . whether reaction is in the gaseous or liquid phase . . . whether the carrier is to be coated or impregnated with the active agent, he's ready to suggest the specific NORTON product that will do the job best. He also knows that *every* NORTON Carrier gives chemical processors the assurance of highest uniformity. From lot to lot — in any quantity — size, weight, porosity, pore diameter and purity are held to close tolerances that assure precise duplication of results.

Take advantage of the service the Norton Man represents. Let him help you to meet catalyst carrier specifications exactly. It's the simple practical way to insure maximum catalyst activity and life . . . to keep catalyst costs low . . . to get optimum yield from your process. Write NORTON COMPANY, Refractories Division, 902 New Bond Street, Worcester 6, Mass.

WIDE RANGE OF TYPES AS FOLLOWS

Shapes	**Materials**
Spheres	Alumina
Rings	Silicon Carbide
Pellets	Fused Magnesia
Granules	Zirconia
Powders	Silica, Zircon
	Magnesia — alumina
	Spinel, etc.

Porosity — from 10% to 50%

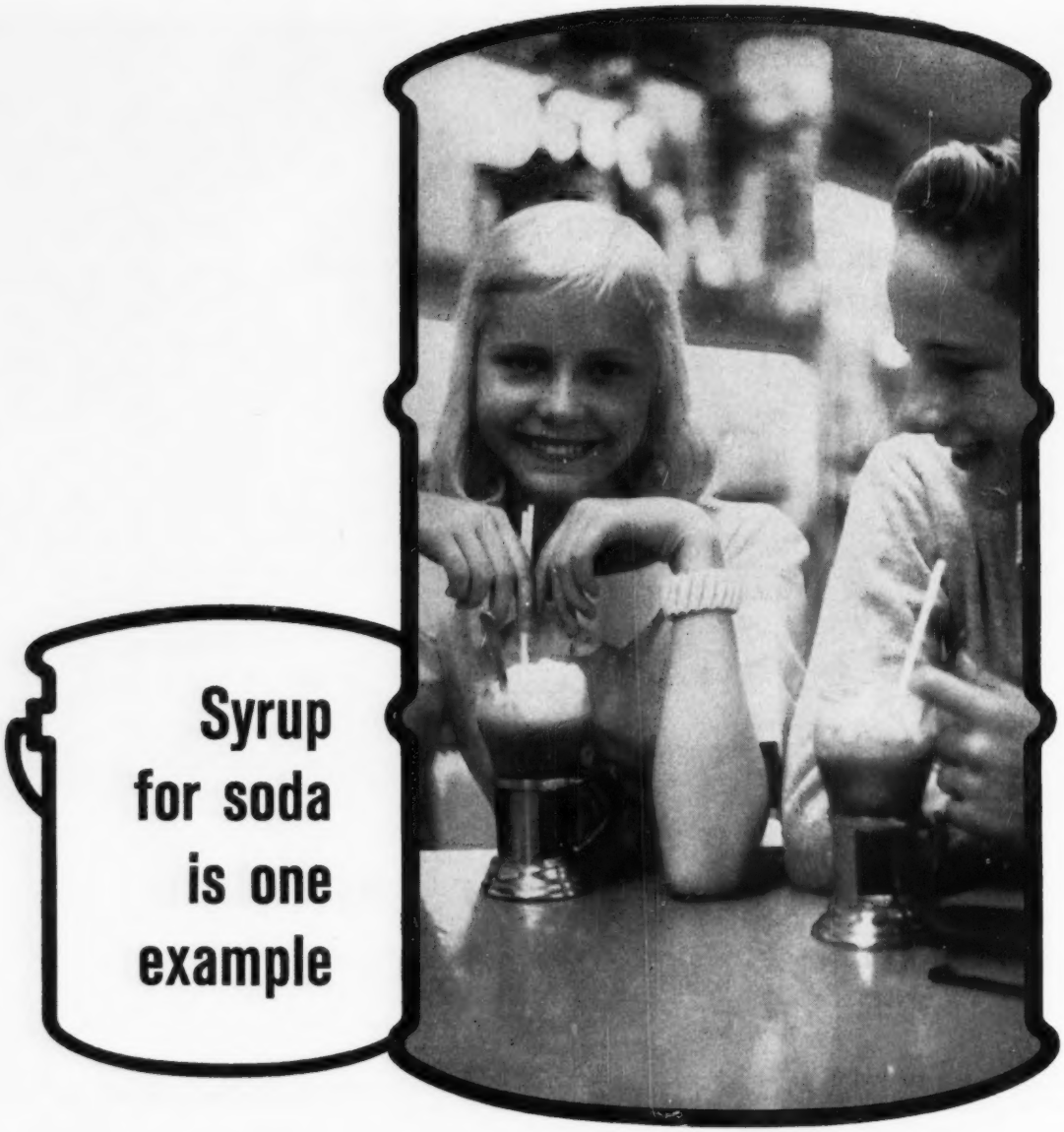
Surface Area — from less than 1 to 70 $m^2/gram$*

*BET Method

NORTON
REFRACTORIES
Engineered... Rx ...Prescribed

Making better products . . . to make your products better

NORTON PRODUCTS Abrasives • Grinding Wheels • Grinding Machines • Refractories • Electrochemicals — BEHR-MANNING DIVISION Coated Abrasives • Sharpening Stones • Pressure-Sensitive Tapes



There's a USS steel container to meet almost every shipping need

Pure and protected, ingredients for many of our foods journey from supplier to processor in containers of steel. Whatever product you ship, its purity is secure in a USS steel drum or pail. USS shipping containers guard your product in a rugged, durable shell of steel. They're precision-made, precision-lined and spotlessly clean, and they're ready to be decorated with your full-color trademark, design or merchandising message.

Whether you ship food or chemicals, paint or petroleum, seven USS plants and sales offices as well as nine sales representatives can help you select the best steel shipping container for your product. Select from a variety of drums and pails, with many kinds of closures, in carbon or stainless steel. Carbon steel containers are available with regular or special linings. Find the right steel shipping container for your product in the largest and most varied line available . . . the USS line.

Plants and Sales Offices: Los Angeles, Alameda, Calif. • Port Arthur, Texas • Chicago, Ill. • New Orleans, La. • Sharon, Pa. • Camden, N. J.

Sales Representatives: Great Western Chemical Co., Portland, Ore., Seattle, Wash. • Tyler-Dawson Supply Co., Tulsa, Okla. • J. A. Bauer, Cincinnati, Ohio. • Matteson-Van Wey, Inc., Detroit, Mich. • Midway Can Co., St. Paul, Minn. • Wm. B. Tabler Co., Louisville, Ky. • F. H. Ross & Co., Charlotte, N. C. • R. B. Huber, Boston, Mass.

United States Steel Products
Division of
United States Steel

USS TRADEMARK

Lubrication News

PROFITABLE IDEAS ON THE LUBRICATION OF CHEMICAL PROCESS EQUIPMENT

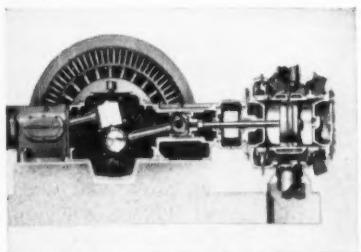
Carbon deposits in compressors are often a result of overlubrication

The plant engineer of a large basic chemicals plant recently handed us this problem: carbon deposits appeared regularly on the valves and cylinders of his air and gas compressors.

A Texaco Lubrication Engineer reviewed the possible causes. First, he checked the lubricants being used; the right lubricant had been specified for each compressor. Next, he examined the mechanical feed system that scheduled the rate of lubrication. Here, he found the feeders were set to admit too much lubricant into the compressors. This was obviously causing the carbon deposits.

He immediately recommended that trials be set up to determine the exact amount of lubricant required in each compressor. Intake valves, discharge valves and cylinder parts were frequently examined for presence of a thin oil film. Where dryness or light rusting appeared, lubricant feed was increased; excessive oil on the parts or in clearance spaces indicated the need for a reduced feed.

A Texaco Lubrication Engineer is always available for consultation on the choice and use of compressor lubricants.



Red arrows pointing to intake valves, discharge valves and cylinder ports show where to look for thin film of lubricant that indicates proper rate of feed. Deposits on valves are usually result of too much oil, poor grade of oil, or dirty intake air.

STORAGE METHODS CAN DETERMINE LUBRICANT EFFICIENCY ON THE JOB

Lubricant performance depends to a large extent on the way the product is stored and handled by the purchaser before it's used. Here are some proven methods that will insure complete protection for stored lubricants.

To avoid contamination with water
Best lubricant storage is in a fireproof building. If lubricants are stored outdoors, however, drums should be placed on their sides, to prevent rainwater from being sucked through the seal by temperature changes. This is particularly important with oils containing additives, since some additives are damaged by water contamination.

Outside storage in cold climate
Low temperature makes lubricants stiff and hard to handle. Heating will restore a workable viscosity, but if too much localized heat is applied to a lubricant it may be rendered useless.

The best way to handle very cold lubricants is to put them indoors and let them reach room temperature slowly. The safest fast heating method is to use exhaust steam. An exposed flame may melt the sealing compounds on the drum and cause leaks.

Safe ways to transfer lubricants
A standard pump that fits the drum opening will prevent contamination in transferring lubricants from one container to another. In some plants the product is applied directly from the original container to the lubricating point. It's essential in any case to avoid using the same pump and hose for different types of lubricants, to prevent contamination.

Ideally the oldest stocks should be used first. All Texaco products are factory-dated to facilitate this procedure. Basic safety demands that the floor of the lubricant dispensing area be kept clean to avoid falls and fires—and fire-fighting equipment should be nearby, just in case.

Notice to plants with water-seal gasholders

Corrosive effects of water and weather on water-seal gasholders can now be reduced through development of a new use for a Texaco Marine Product. Furthermore, the simple method of applying the product (we call it Floatcoat) sharply reduces maintenance costs by eliminating the need for rigs, scaffolds, and complicated application equipment.

To apply, Floatcoat is merely poured on the water seal. As the tank rises and falls, the coat is spread on the side of the tank automatically. It provides a tough, adhesive shield against both the water in the seal and the weathering effect of the elements. In addition, it penetrates and cleans out existing rust. It is resistant to water washing, needs to be renewed only after long intervals.

Mail coupon at right for more information.

Guide to Organized Lubrication

This book discusses organized lubrication from management's point of view—as a means of controlling costs. It discusses methods that help raise production, extend parts life, cut downtime. For free copy, use coupon below.

TEXACO INC.
Dept. CW-CP-21
135 East 42nd Street
New York 17, N. Y.

I am attaching my company letterhead to this coupon.

☐ Send a copy of Management Practices that Control Costs via Organized Lubrication.

☐ Send information on Floatcoat.

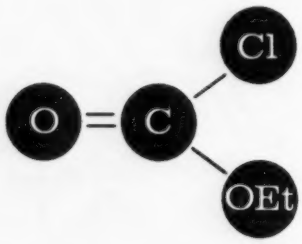
☐ Ask a Texaco Lubrication Engineer to call at my plant.

Name_____

Title_____

Have you considered

ETHYL CHLOROFORMATE



as a route to

Carbonates and Carbamates:

$ROH + EtOCOCl \longrightarrow ROCOOEt + HCl$

$RNH_2 + EtOCOCl \longrightarrow RNHCOOEt + HCl$

Specialty Isocyanates:

$RNH_2 + EtOCOCl \longrightarrow RNHCOOEt$

$RNHCOOEt \xrightarrow{heat} RNCO + EtOH$

Polyurethanes:

$EtOCOCl + H_2NR'NH_2 \longrightarrow EtOCONHR'NHCOOEt$

$EtOCONHR'NHCOOEt + HOR''OH \longrightarrow$ polyurethane + EtOH (by transesterification)

Ethyl Chloroformate is a reactive intermediate which offers interesting possibilities in the production of polyurethanes, polycarbonate plastics, pharmaceuticals, flotation agents, perfumes, plasticizers, dyestuff intermediates and other organic chemicals. This versatile material is available in commercial quantities.

Chloroformates

FMC has broad experience in the field of chloroformates and would be interested in considering manufacture of chloroformates or derivatives of chloroformates that may be of special interest to you.

New Data Available

FMC has just published an expanded Technical Bulletin on Ethyl Chloroformate.

Write for your copy of Bulletin No. 10.

fmc
FOOD MACHINERY AND CHEMICAL CORPORATION

Putting Ideas to Work

FOOD MACHINERY AND CHEMICAL CORPORATION

Chemicals and Plastics Division

161 EAST 42ND STREET, NEW YORK 17, N. Y.

OPINION

Thinking Man's Fiber

TO THE EDITOR: Re your Washington Newsletter for June 13 and the fiber products identification act:

"Quo usque tandem. . . !" Seriously, is there no limit to the stupidity that fiber producers or advertisers are allowed to attribute to the public or exhibit as theirs? If a newly treated rayon fabric (cotton, or anything else for that matter) is *suitable* for wash and wear, and so identified by companion labels, it will be accepted as such. But if it is no good, how long do you think the public can be deceived under *any name?* Sounds much like "the filter cigarette that thinks for you"!

WERNER BARASCH
Chief Chemist
Shasta Division
U.S. Plywood Corp.
Redding, Calif.

CW *expressed its viewpoint on fiber labeling earlier this year* (April 4, p. 11) *advocating the use of graphic symbols to describe a fabric's wash-and-wearability. It's the performance, not fiber name, that the consumer wants to know.*—ED.

Nomenclature Battle

TO THE EDITOR: I note with interest the remarks re chemical nomenclature appearing in the July 4 issue of CHEMICAL WEEK (*p. 48*).

I have not studied any system exhaustively but have had many occasions to compare the Dyson and Wiswesser systems in a limited way. On all such, the Dyson system has appeared as hopelessly cumbersome. In addition, it cannot be noted by typewriter nor can it be transmitted by Teletype.

Now that Dyson has been employed by *Chemical Abstracts*, it is to be feared that his system may be forced upon the publication. Such an accomplishment would set chemical nomenclature back by at least a decade. . . .

FRANKLIN B. WELLS
1500 Pennsylvania Ave.
Emmaus, Pa.

TO THE EDITOR: In reference to your article on notation, it would appear that Mr. Wiswesser's chemical notation system is far superior to that of Dyson's.

It is certainly regrettable that IUPAC adopted the Dyson method as a provisional international cipher. . . .

H. W. VOIGT
73 Kendall Court
Dover, N. J.

TO THE EDITOR: The discussion of chemical coding systems is informative and to the point. It is quite true that some consider the Wiswesser system "at least as good" as the officially backed Dyson system, but that is stating it mildly. The clumsy and unworkable Dyson system is wrong, not just in detail, susceptible to demonstration by impartial tests, but also fundamentally throughout its whole structure and so clearly that no testing is needed to show it. Its shortcomings include the following:

Arbitrary advance designation of positional number doubles the work of coding without adding anything useful. . . .

For the simplest structures, the paraffin derivatives, the carbon skeleton offers no basis for any useful organization of chemical knowledge; properties are determined much more by functional groups than by carbon chain length.

For more complex structures, the polycyclic, the basic resolution into benzenoid and nonbenzenoid not only violates the IUPAC desideratum of unambiguity when both types are present but also, and even more important, throws two-thirds of the listings from the first three code marks into one single dominating class. . . .

Identically printed Arabic numerals represent three entirely different sets of meanings.

The system is incompatible with inorganic chemical notation. . . .

Anyone who has even the least acquaintance with both systems knows

CW **welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.**

Address all correspondence to: H. C. E. Johnson, Chemical Week, 330 W. 42nd St., New York 36, N.Y.

VIEWPOINT

THE FUSS OVER LABOR LAWS has reached a fever pitch as the current Congressional session comes into the final stretch. The leaders of both the Republicans and the Democrats, fearing that their own parties will be blamed by the voters if nothing is done this year, are pushing for action. The pressure groups are getting into top gear. Mail is flooding into every lawmaker's office. And congressmen are calling each other names in public.

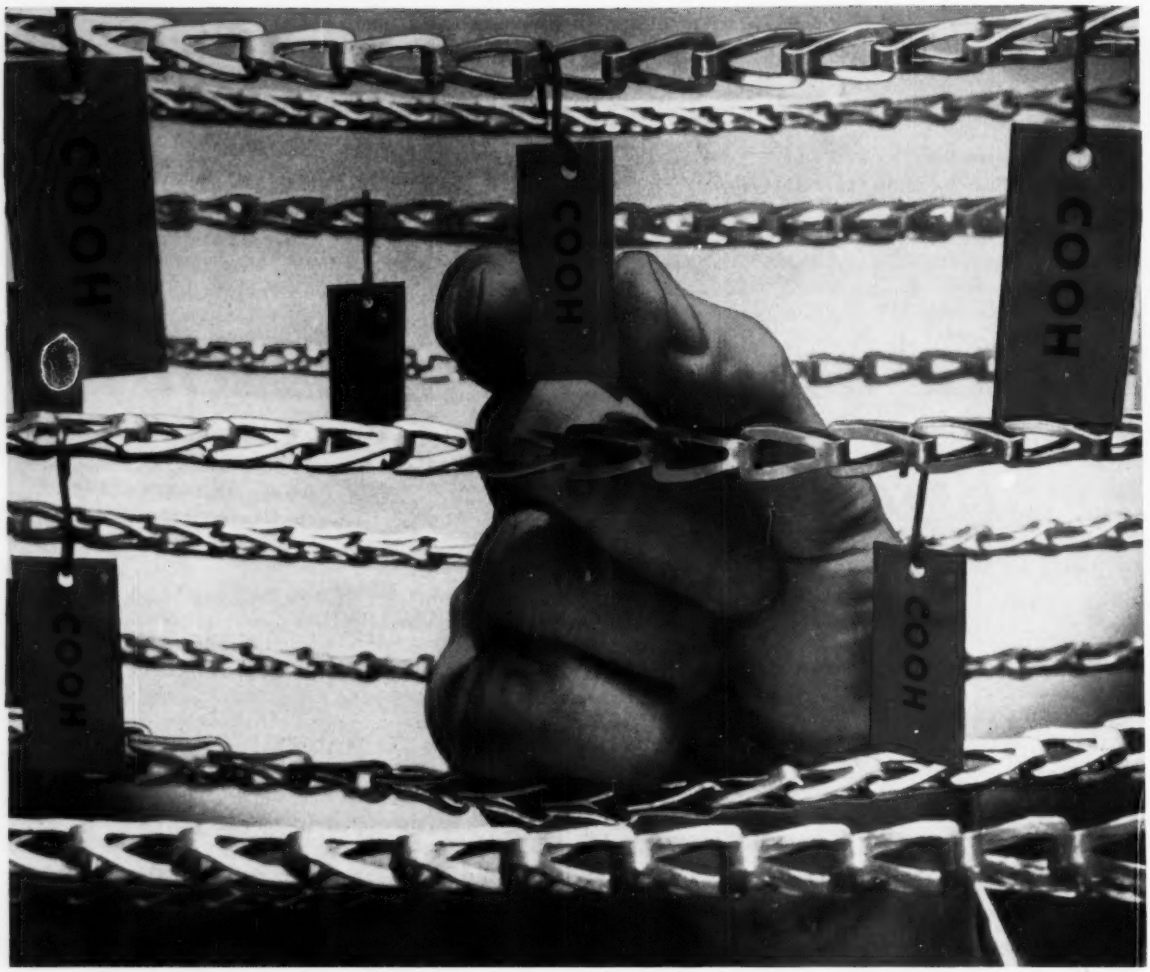
It's a fine demonstration of the vitality of democracy, we guess. But we're disturbed by it all. You can't pass wise laws if you have to do it in the midst of a three-ring circus.

Thus, we'd like to suggest a cooling-off period. It would be far better to have no legislation at all this year than to see a bill enacted that would be unfair to management, the legitimate labor movement or the general public.

However, since the politicians feel such a delay isn't expedient, let us merely remind our elected representatives of the first order of business: the important thing is to pass a bill that closes the loopholes in the Taft-Hartley Act—especially in the areas of "hot cargo," picketing and secondary boycotts—that have been obvious for the 12 years it's been on the books. And now's the time. It's pretty well agreed that if Taft-Hartley isn't amended now, it won't be for many years.

While we're at it, here's a different type of suggestion for our legislators: Why doesn't some committee investigate the positive ways of promoting management - employee harmony? Take employee stock ownership, for example. We'd like to see Congress look into new tax incentives that could encourage more companies to sell stock to rank-and-file employees. The rewards to companies that do so under current tax laws are obvious. Isn't it something that more firms should be encouraged to do?

H. C. E. Johnson
Editor-in-Chief



Use METHACRYLIC ACID or ACRYLIC ACID to add carboxyl groups to polymer chains

Would you like to add carboxyl groups to a polymer? Methacrylic acid and acrylic acid provide the answer. Adding COOH radicals to polymers by copolymerizing with one of these monomers may contribute benefits such as 1) improved adhesion properties, 2) better freeze-thaw and mechanical stability in polymer emulsions, 3) solubility in alkalies, including ammonia, 4) reactive centers for cross-linking by agents such as zinc oxide, diamines, or epoxides, 5) improved oil resistance, and 6) increased hardness, softening temperature, and abrasion resistance. Methacrylic acid and acrylic acid can be copolymerized with monomers such as styrene, acrylonitrile, butadiene, isoprene, acrylates, methacrylates, vinyl chloride, vinyl acetate, vinylidene chloride, and divinylbenzene.

Write to Dept. SP-16 for technical literature on these monomeric acids.

Chemicals for Industry

ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Other Rohm & Haas acrylic monomers

METHYL ACRYLATE • ETHYL ACRYLATE • BUTYL ACRYLATE • 2-ETHYLHEXYL ACRYLATE • METHYL METHACRYLATE • ETHYL METHACRYLATE • BUTYL METHACRYLATE • HEXYL METHACRYLATE • DECYL-OCTYL METHACRYLATE • LAURYL METHACRYLATE • STEARYL METHACRYLATE

how well Wiswesser's system has the answer to every one of the foregoing problems. . . .

C. G. DUNKLE
15 Fairchild Ave.
Morris Plains, N. J.

TO THE EDITOR: Your timely article, "Trimming the Language," covers the external facets of the controversy over line notations for chemical structures.

May I add two comments? The first is that the provisional adoption of Dyson's system by the IUPAC is not really the important factor: adoption by *Chemical Abstracts* would be of much greater consequence. . . . The second comment is that all of the chemists of my acquaintance who have examined both systems favor Wiswesser. Your article played down the point that the Wiswesser proponents feel it has a decided advantage over existing notations—enough advantage, in fact, to save *Chemical Abstracts* hundreds of thousands of dollars in the next 10 years. . . .

RAYMOND R. MYERS
Lehigh University
Bethlehem, Pa.

Adoption of the most efficient notation system is, of course, the objective of all those working on this nomenclature problem.

In response to a CHEMICAL WEEK *query,* Chemical Abstracts *informs us that a decision with regard to its adoption of a new notation system is not to be expected in the near future.*

We are assured that no decision will be made without careful and objective consideration of all the problems involved.—ED.

Outdoor Marble Cleaner

TO THE EDITOR: Your article "Putting New Shine on Marble Cleaner Sales" (*CW, June 6, p. 55*) has aroused considerable interest, as evidenced by a flow of letters to us from packagers, material vendors and others with marble cleaning problems.

In our estimation, one of your conclusions is incorrect. Monument and statuary owners, store front owners as well as owners of soot-and-dirt-covered commercial buildings are a good market for cleaners. We recently announced a new exterior marble cleaner; and, before literature had been circulated generally, it had been so well received by the few monument dealers contacted personally that over 4 tons of it, in small packages, had been sold. We have since discovered that it can be used for the cleaning of copper-clad pans and papermakers' screens—admittedly, a little out of our marketing reach. . . .

JOHN H. CURTIS
Research Director
Vermont Marble Co.
Proctor, Vt.

Don't Forget Alaska

TO THE EDITOR: Your publications are usually so factual that I'm curious about the source of the statement (*CW, June 27, p. 39*) that "all states have at least one form of poison ivy, oak or sumac."

Where are these found in Alaska?

RICHARD H. WASHBURN
Entomologist
University of Alaska
Palmer, Alaska

CW*'s source at the American Museum of Natural History takes refuge in Alaska's entry into the union seven days after our item appeared.*—ED.

MEETINGS

Gordon Research Conferences: At Colby Junior College, New London, N.H.—food and nutrition, Aug. 17-21; instrumentation, Aug. 24-28; cancer, Aug. 31-Sept. 4. At New Hampton School, New Hampton, N.H.—analytical chemistry, Aug. 17-21; statistics in chemistry and chemical engineering, Aug. 24-28; chemistry of adhesion, Aug. 31-Sept. 4. At Kimball Union Academy, Meriden, N.H.—chemistry and physics of metals, Aug. 17-21; photonuclear reactions, Aug. 24-28; molten salts, Aug. 31-Sept. 4.

Technical Assn. of the Pulp and Paper Industry, 10th testing conference, Multnomah Hotel, Portland, Ore., Aug. 17-21.

American Rocket Society and **Northwestern University,** gas dynamics symposium, Northwestern University, Evanston, Ill., Aug. 24-26.

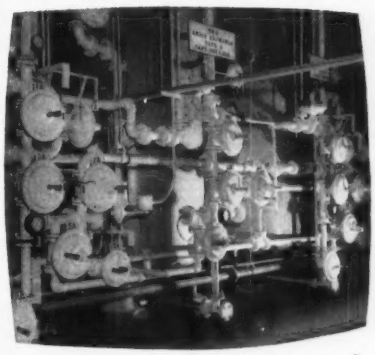
Chemical Institute of Canada, Physical Chemistry Subject Division; symposium on mass spectrometry in chemistry; McMaster University, Hamilton, Ont., Aug. 30-Sept. 1.

1959 Cryogenic Engineering Conference; subjects: cryogenic processes, applications, equipment, properties; University of California, Berkeley, Calif., Sept. 2-4.

THESE NEW IDEAS HAVE COME FROM

ILLCO-WAY DESIGNERS AND BUILDERS

MODERN EQUIPMENT FOR ionXchange



Illinois Water Treatment Co. was incorporated over 20 years ago to use the newly-discovered resins in the development of ionXchangers.

1942 By this time, IWT had already built more than 50 successful multi-bed ionXchangers (some of which are still in use today).

1943 IWT brought "automation" to ionXchange with the introduction of automatic ionXchangers, some of which were very large. (Some of *these* are still operating today, also.)

1947 This was the year when IWT brought out the first large (400 gpm) ionXchanger for silica removal.

1949 IWT built the first commercial *Mixed Bed* ionXchanger. (U.S. Patents 2605084 2771424)

1954 A huge 5,000 gpm fully-automatic mixed-bed ionXchanger was designed and built by IWT to remove silica from make-up water for high-pressure boilers. This plant has now de-ionized over SIXTY BILLION pounds of water.

1957 IWT introduced "Counterflow," the first really new idea in multi-bed ionXchangers since the introduction of silica-removal techniques. (Patent pending.)

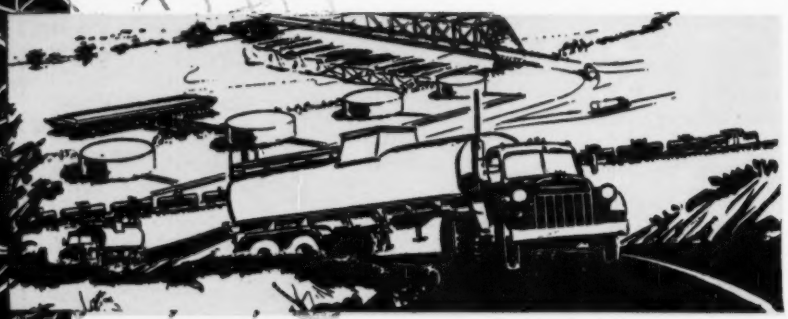
THIS EXPERIENCE CAN MEAN A LOT TO YOU

These ideas, and other IWT developments, can mean reduced costs, improved operations, and greater efficiency in your plant. *Check with your IWT representative.*

ILLINOIS WATER TREATMENT CO.
840 CEDAR ST., ROCKFORD, ILLINOIS
NEW YORK OFFICE: 141 E. 44th St., New York 17, N.Y.
CANADIAN DIST.: Pumps & Softeners, Ltd., London, Ont.

NOW.... PROMPT MOLTEN SULPHUR DELIVERIES

Radiating out from Cincinnati



This is the first of the TGS Terminal Molten Sulphur Truck and Rail Distribution Stations being set up to serve industrial areas of the country. Regular large tonnage barge shipments of Molten Sulphur from our mines in the Gulf area are keeping this Cincinnati Terminal well-stocked to meet the growing demand for Molten Sulphur in the Ohio River area.

Additional Molten as well as Solid Sulphur terminals are being considered for other parts of the country.

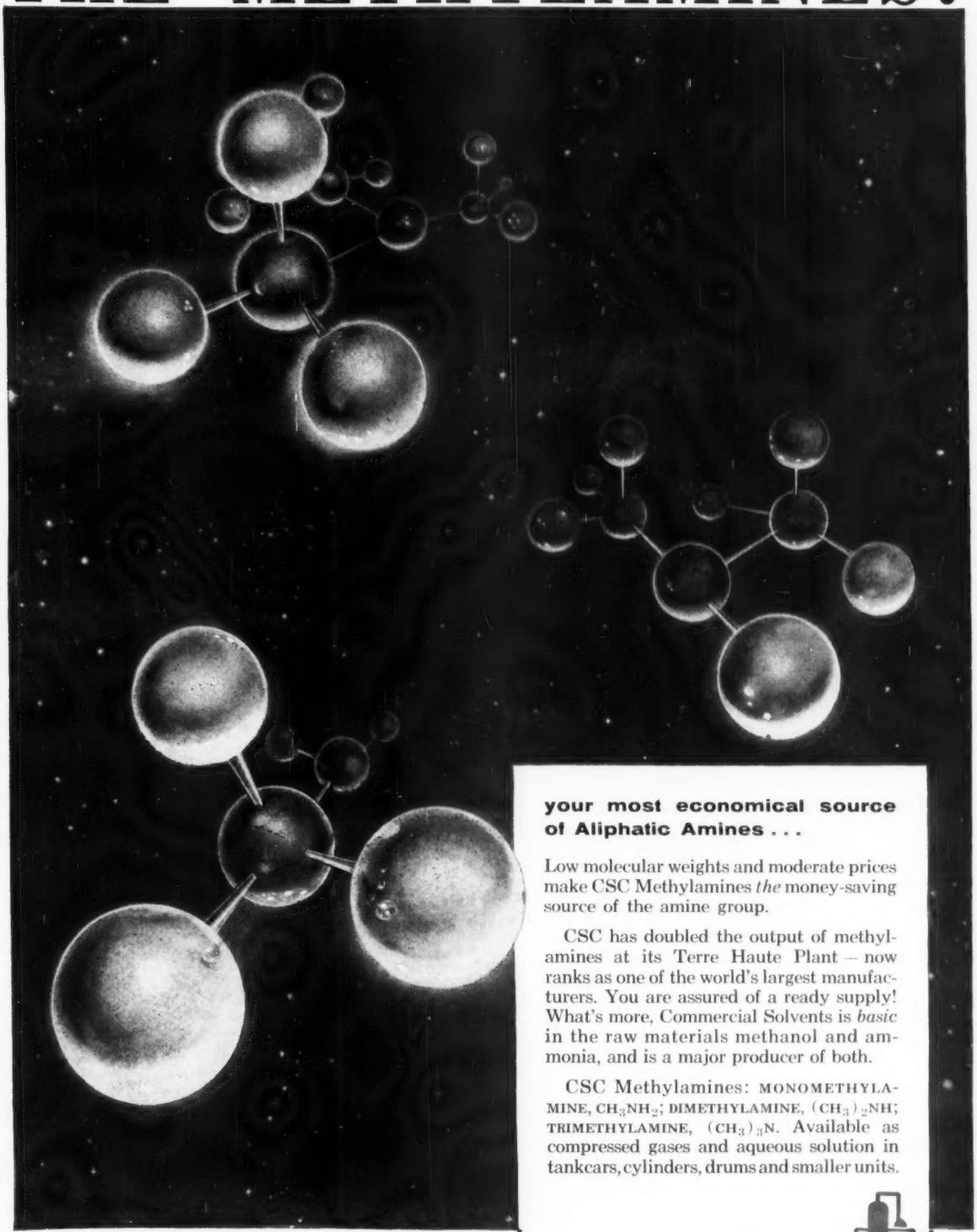
TEXAS GULF SULPHUR COMPANY

75 East 45th St., New York 17, N. Y. / 811 Rusk Ave., Houston 2, Texas

Sulphur Producing Units: Newgulf, Texas • Spindletop Dome, Texas • Moss Bluff, Texas • Fannett, Texas • Worland, Wyoming •

Molten Sulphur in tank *cars* can be delivered to any point in the States or Canada from our nearest mine or recovery plant. Barge deliveries of Molten Sulphur are available on all navigable inland waters. Solid Sulphur, as for many years, is deliverable all over the world. Large inventories at our mines assure industry it will get its supplies when needed.

THE METHYLAMINES!



your most economical source of Aliphatic Amines . . .

Low molecular weights and moderate prices make CSC Methylamines *the* money-saving source of the amine group.

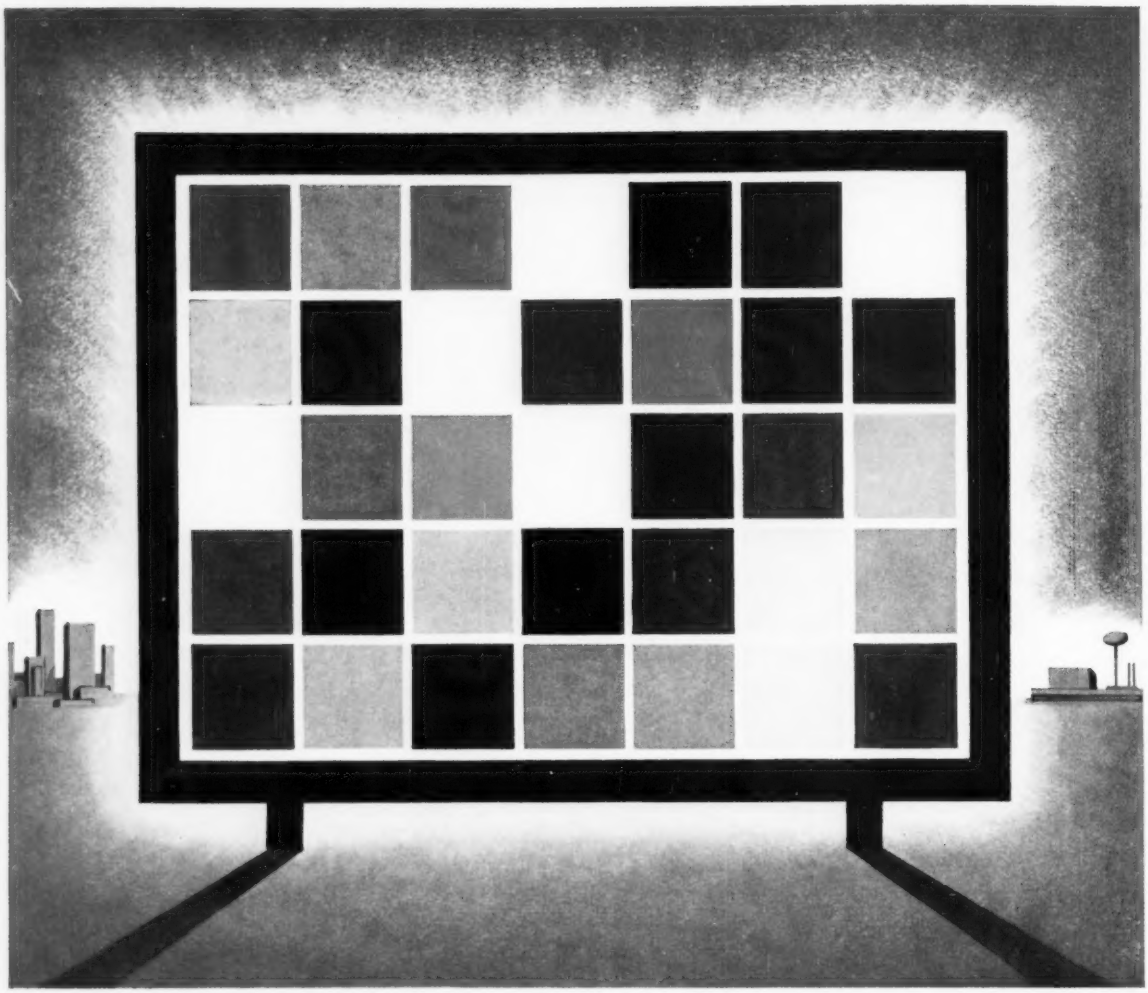
CSC has doubled the output of methylamines at its Terre Haute Plant — now ranks as one of the world's largest manufacturers. You are assured of a ready supply! What's more, Commercial Solvents is *basic* in the raw materials methanol and ammonia, and is a major producer of both.

CSC Methylamines: MONOMETHYLAMINE, CH_3NH_2; DIMETHYLAMINE, $(CH_3)_2NH$; TRIMETHYLAMINE, $(CH_3)_3N$. Available as compressed gases and aqueous solution in tankcars, cylinders, drums and smaller units.

Industrial Chemicals Department

COMMERCIAL SOLVENTS CORPORATION

260 Madison Avenue, New York 16, N. Y. • Offices in Principal Cities



How Shell Chemical serves the surface coating industry

Shell Chemical has maintained for many years an active program of practical and theoretical research in oxygenated solvents and Epon® resins for surface coatings.

The result has been a better understanding of the effect of solvents on film formers—leading to superior performance and greater economy in surface coating formulations.

Epon resins are still another important outgrowth of Shell research. Surface coatings based on Epon resins are among the hardest, toughest, and most resistant to the attack of chemicals and corrosion ever developed.

Shell Chemical's Technical Service Laboratory offers you assistance in solving surface coating formulation problems. Write or phone your nearest Shell Chemical district office if we can be of assistance.

Acetone
Bisphenol-A
Diacetone Alcohol
Di-Tertiary Butyl Peroxide
Epon® Resins
Ethyl Alcohol
Ethyl Amyl Ketone
Glycerine
Hexylene Glycol
Isopropyl Alcohol
Isopropyl Ether
Mesityl Oxide
Methyl Ethyl Ketone
Methyl Isobutyl Carbinol
Methyl Isobutyl Ketone
Neosol® Proprietary Solvent
p-Tertiary Butyl Benzoic Acid
Secondary Butyl Alcohol

SHELL CHEMICAL CORPORATION
INDUSTRIAL CHEMICALS DIVISION

Atlanta • Chicago • Cleveland • Detroit • Houston • Los Angeles • Newark • New York • San Francisco
IN CANADA: Chemical Division, Shell Oil Company of Canada, Limited, Montreal • Toronto • Vancouver

SHELL

Business
Newsletter

CHEMICAL WEEK
August 15, 1959

Another good year for holders of chemical companies' stocks is virtually assured, with first-half dividend payments at an all-time peak and several companies increasing regular dividends or declaring special dividends this month.

But at this point, it's not clear whether chemical management will be more or less bountiful to stockholders this year than directors in other industries.

According to the Dept. of Commerce, chemical companies are above average in liberality for the first half of this year: their publicly reported cash dividends increased 3.4%, to $458.6 million, during that period, while the dividend total for all industries was up 3.1%, to $6,009.1 million. But the New York Stock Exchange comes up with the opposite finding. It calculates that cash dividends paid by the 96 listed companies classified as chemical rose 2.7% in first-half '59, to $502.5 million, while the total for all 1,079 listed companies climbed 3.9%, to $4,443.5 million.

Among chemical concerns boosting dividends or declaring extras this summer:

American Agricultural Chemical, American Potash, Detrex Chemical, Imperial Color Chemical, Pennsalt Chemicals and Pierce & Stevens.

Pharmaceutical companies that have recently increased regular dividend rates: American Home Products, Bristol-Myers, Carter Products, Smith Kline & French, Sterling Drug, Vick Chemical (*p. 27*) and Warner-Lambert.

In addition, Celanese, Dow Chemical and Pacific Vegetable Oil have recently declared stock dividends; and American Viscose has resumed its 50¢/quarter dividend rate after having paid 25¢/quarter the past year.

•

Investigations—and possibly lawsuits and new legislation—are coming in the wake of last weekend's dynamite and ammonium nitrate explosion at Roseburg, Ore. At least 13 persons were killed and $10 million worth of property destroyed when a truckload of explosives—2 tons of dynamite and 4½ tons of an ammonium nitrate-diesel oil mixture —was detonated, apparently by heat from a burning building.

Investigators for the Interstate Commerce Commission and various insurance companies quickly moved in to probe the incident, and it was expected that a Douglas County grand jury would be asked to investigate. Sen. Richard Neuberger (D., Ore.) is calling for legislation to tighten controls on interstate shipments of explosives.

One question to be explored: whether there was a violation of ICC regulations in leaving unattended a truck loaded with explosives. It

Business Newsletter

(Continued)

appeared that the driver had parked the truck—with the permission of the Gerrettsen Building Supply Co., to which some of the explosives were consigned—on that company's parking lot overnight; and that the building caught fire during the night. The shipment was from Pacific Powder Co. (Seattle); and that company's controller told *CW* the estimated damage was "way beyond" insurance coverage.

•

More expansions—big ones and little ones—bear testimony to confidence in the process industries' future.

Olin Mathieson is embarking on a $30-million expansion program in organic and inorganic chemicals. Products included: glycerine and epichlorohydrin (*p. 75*); propylene oxide and glycol, polypropylene glycols, glycol ethers, surfactants, ethylene dichloride, sulfamic acid, chlorine.

Du Pont plans to build a "major" plant to produce polyethylene resins at Victoria, Tex. It will be completed by early '61. And Du Pont has started construction of its previously reported 50-million-lbs./year caprolactam plant at Beaumont, Tex.

Pittsburgh Metallurgical will spend an estimated $1 million or more on an expansion and modernization project at Niagara Falls, N.Y.

Foote Mineral is readying plans for a 30% increase in capacity of the larger of its two electromanganese plants at Knoxville, Tenn.

And overseas, Borax Francais is planning a $10-million expansion to supply more boric acid for France, Germany and the Benelux nations.

•

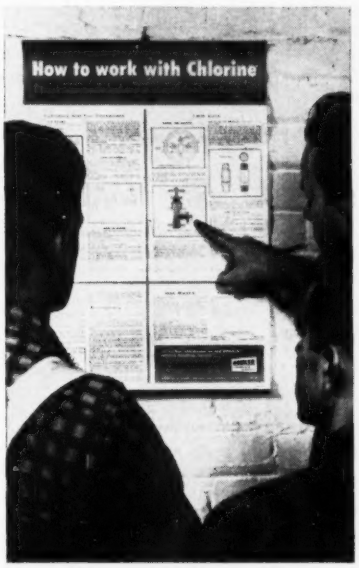
The CPI can take a bow for successful launching of Explorer VI (the paddle wheel satellite) last Friday. The paddle wheels themselves are solar cells, prime research targets in the industry. The first stage was propelled by kerosene and liquid oxygen, the second by unsymmetrical dimethylhydrazine and red fuming nitric acid, the third by a "high performance," double-base solid propellent developed by Hercules Powder. Hercules also developed the shell for the third case, a glass-filament-reinforced plastic.

•

The Air Force is canceling its biggest boron-fuel contract. It notified Olin Mathieson early this week that it has decided to halt development of the J93-5 jet engine with boron-fuel afterburner, and thus will not need the trialkyl decaborane (HEF-3) that OM planned to produce in the big new plant at Model City, N.Y. Accordingly, that $45-million plant will not open next month. And reportedly the Navy is considering a similar move for its $38-million Oklahoma plant, built by Callery Chemical and also nearly ready for startup.

BRIEFS

on a safety chart for chlorine...
sodium benzoate that won't ball...
a grease that won't burn or corrode



Post this safety chart wherever your men work with CHLORINE

You can cut down accidents by placing this chlorine safety information right where your men are working.

This practical wall chart uses clear diagrams, everyday language. It tells your men how to handle tank cars, cylinders and ton containers.

It shows how various valves are constructed and how they should be operated.

Sections on first aid and emergency measures give advice that can minimize the effects of an accident, should one occur.

Mail the coupon for this chart. Maybe you'd like a copy of our Chlorine Manual, too. Its 76 pages are full of useful chemical and engineering information.

You can't burn this grease ... or break it down

Where could you use a grease that is completely nonflammable...

- a grease that won't break down in the presence of oxygen, hydrogen peroxide, or concentrated mineral acids or alkalies
- a grease that's applicable up to 200° C. (with an oil base stable to 300°C.)
- a grease that is odorless and nontoxic?

Yes, we are describing one grease. It's named Fluorolube.®

It's a high-density polymer of trifluorovinyl chloride. It's available in many grades, ranging from low-viscosity, colorless oils to opaque greases.

All are excellent lubricants.

For complete specifications and typical properties, send the coupon for our Fluorolube Data File.

Flake-form sodium benzoate ... instantly dissolving

Like many fine powders, sodium benzoate may give trouble in processing by forming into balls when you wet it.

If this ever happens in your process, you can stop it for good—with Hooker *flake* sodium benzoate. As you see here, this fine flake form starts dissolving in water almost instantly.

Thanks to an unusually careful flaking-screening operation, the Hooker flake stands shipping well—won't dust.

It's available in two grades:

U.S.P. grade is over 99% pure, contains a max. of 0.2% benzoic acid, 0.5% water.

Technical grade is also a highly pure 98%. It assays 0.4% max. benzoic acid. The rest is water.

You can get either grade in powder form, too.

Order a trial drum now and you can see for yourself how this quick-dissolving flake can speed your operations. For complete technical data, check the coupon.

For more information on chemicals discussed above, check here:

☐ CHLORINE SAFETY WALL CHART ☐ SODIUM BENZOATE
☐ CHLORINE MANUAL ☐ FLUOROLUBES

Clip and mail to us with your name, title, and company address. (When requesting samples, please use your business letterhead to speed delivery.)

HOOKER CHEMICAL CORPORATION
708-2 FORTY-SEVENTH STREET, NIAGARA FALLS, N. Y.

Sales Offices: Chicago Detroit Los Angeles New York Niagara Falls Philadelphia Tacoma Worcester, Mass.
In Canada: Hooker Chemicals Limited, North Vancouver, B. C.

HOOKER CHEMICALS PLASTICS

LATEST

. . . Of The Comprehensive Range Of Equipment Developed For But One Purpose—To Provide The Most Efficient And Economical Method For Handling *Your* Solid-Liquid Separations Whatever The *Materials*, The *Volumes*, The *Process Requirements*

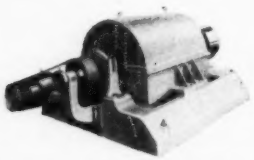
The BIRD-HUMBOLDT / *oscillating screen centrifuge*

Here is a new machine that may save you a lot of money on dewatering of plus 65 mesh granules or crystals. It handles from 5 to 50 or more tons per hour — gets the solids down to 5% or less surface moisture with almost no loss or degradation of solids — operates up to 3000 hours or more without screen replacement — takes only 0.2 KWH per ton of dried solids.

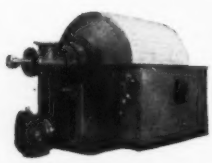
which is the best separating method for you?

That's easy. Just put it up to the Bird Research and Development Center, a fully staffed and equipped pilot-scale testing laboratory devoted exclusively to solid-liquid separation work.

BIRD MACHINE'S 50" YEAR OF SERVICE TO INDUSTRY

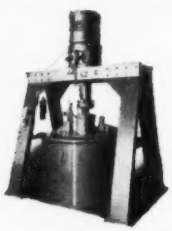


BIRD CONTINUOUS SOLID BOWL CENTRIFUGALS are widely used for a great range of applications. Solids may range from a fraction of a micron to half inch; feed slurries may vary in volume and in consistency; cost of operation and maintenance is seldom more than a few cents per ton.



BIRD-YOUNG ROTARY VACUUM FILTERS offer up to ten times the capacity per foot of filter area of ordinary vacuum filters. Their unique design assures positive, complete discharge of dry cake; ability to handle large volumes of filtrate; multi-stage, countercurrent wash; fume-tight operation.

BIRD-PRAYON HORIZONTAL, PAN TYPE VACUUM FILTERS provide maximum effective cake wash with minimum wash liquor; eliminate cloth blinding troubles; high tonnage per unit of filter area which ranges from 30 to 560 sq. ft.



BIRD SUSPENDED BATCH CENTRIFUGES are for heavy duty, high capacity operation; 40" or 48" basket, perforate or imperforate; fume-tight or explosion proof construction when required.

BIRD MACHINE COMPANY

SOUTH WALPOLE, MASSACHUSETTS

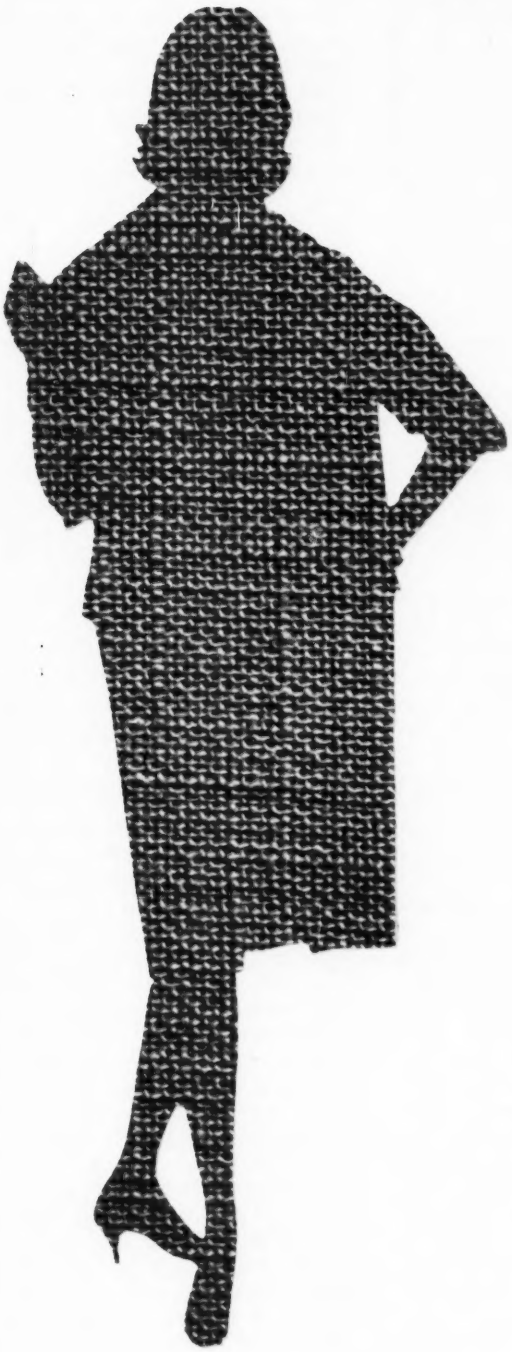
Regional Offices:

EVANSTON, ILLINOIS ALAMO, CAL. ATLANTA 9, GEORGIA

BIRD MACHINE'S 50" YEAR OF SERVICE TO INDUSTRY

Chemical Week — August 15, 1959

Marketing Push Begins on Newest Fibers



A whole new generation of man-made fibers—the fourth—is being groomed for a battle this fall against established products such as cotton, rayon, nylon, Dacron and Orlon. And the key to their success, more than ever before, will be the merchandising techniques used to sell them. The news this week:

- Dow Chemical is putting the finishing touches on a program to launch its Zefran acrylic fiber throughout the U.S. in cotton blends.
- American Cyanamid's Creslan—another acrylic—will make its first bow in about 30 applications, including wearing apparel for all ages.
- Beaunit Mills is seeing the first commercial use of its Vycron polyester in samples of 50%-cotton-blend slacks that will be marketed next spring.

Limits to Logic: Big incentive for chemical companies to move into the highly competitive arena of synthetic fibers is the possibility of "extreme upgrading of chemicals into high-value products." (One instance: converting 27¢/lb. acrylonitrile into a fiber selling at more than $1/lb.)

Chemical companies' scientists have done wonders in creating the fibers; but then, companies run into something that can't be overcome by laboratory logic. This obstacle is the textile industry's complex distribution chain—mill to dyer and finisher, finisher to cutter, cutter to retailer, and, finally, retailer to consumer. At every link of this chain, specialized merchandising techniques are necessary. And it's here that many fibers are "made" or "broken."

For an insight into these problems, *CW* has surveyed what is probably the only group with ties to each link along the textile distributing chain—the converters. Converters — entrepreneurs who speculate in next year's styles and fabrics—are almost unanimous in telling *CW* that new fibers won't get far unless producers offer:

(1) An improved fiber at the same price as the one now used for a specific purpose; or else a just-as-good fiber at a lower price.

(2) Aid in styling of fabrics.

(3) Intelligent promotion at each step in the distribution setup.

(4) Policing to ensure proper use of fibers.

Properties Are Payoff: Most any fiber can be moved into a market with intensive effort, but only good properties can ensure its success, converters hold.

Thus, there's interest in Kodel, which is said to

New Fibers at the Starting Gate

Producer	Tradename	Type
American Cyanamid	Creslan	Acrylic
American Enka	Fiber 500	Improved rayon
American Viscose	Fiber 40	Improved rayon
Beaunit Mills	Vycron	Polyester
Courtaulds	Corval	Improved rayon
Courtaulds	Topel	Improved rayon
Dow Chemical	Zefran	Acrylic
Eastman Kodak	Kodel	Polyester
Goodrich Chemical	Darvan	Nitrile

dye more easily and have less of a tendency to "pill" than its solidly entrenched rival, Dacron. Others see promise in Dow's Zefran because of its dyestuff flexibility and "not so synthetic" hand.

And while some converters complain about "too much emphasis on promotion rather than on the product," others consider intensive promotion "the most essential tool in gaining market acceptance." This second view would seem to augur well for Kodel's chances. For, although Eastman Chemical is just getting the plant's girders in place, a consumer can hardly pick up a magazine or switch on a TV set without seeing a Kodel ad or commercial. A similar approach got Chemstrand's Acrilan off to a fast start several years ago; but the same kind of strategy was less successful for Eastman's Verel.

Premature Plugging: Textile industry men warn that there are distinct risks in early name-pushing. They recall that advertising got too far ahead of Acrilan when production of that now-booming fiber started several years ago. In early plant runs, fiber quality was below par. Operations stopped for months while engineers and researchers untangled the snarl-up, and millions of advertising dollars had been spent with not a pound of the fiber on the market.

There are other tactics in timing and coverage of fiber merchandise programs. Converters say the Arnel name achieved prominence right in step with distribution of the fabrics—something that has not been true with all fibers.

Should Fibers Be 'Typed'? Among converters, one school holds that a fiber producer should aim at a "unique application" (viz., the Orlon sweater); others prefer fibers that can be used "across the board." Union Carbide has stressed one application at a time in promoting Dynel: first, in chemical-resistant work clothes, paint rollers and filter cloth; then in pile coats; and now in carpets. (More than 15 acres of Dynel carpeting is to be used in Carbide's new Park Avenue headquarters building.) "Dyeability" is emphasized in advertising of Allied Chemical's heavy-denier nylon-6, Caprolan, but the largest-volume application now is in tire cord.

Distribution: There's a built-in conflict on distribution policy. A fiber producer wants to place his product with as many textile mills and with as many finishers and cutters as possible, but many mills would like to get exclusive rights to promising new fibers.

However, these differences are not always clear-cut. Burlington Industries—which probably uses as many different fibers as any mill group—says it's interested in all the new fibers for their possibly valuable variations in physical properties.

Problems of Prestige: A marketing problem faced by producers of cellulosic fibers is that the name rayon has become almost synonymous with "bargain basement"—the fibers' intrinsic merits notwithstanding. New fibers in this category—such as Fiber 40, Fiber 500, Corval and Topel (*see table, above*)—are expected by converters to win markets on the basis of performance, mainly in substitution for cotton in blends.

Another prestige problem has been "gimmick use" of noted fibers, as in the 10% nylon blends that boomeranged against the entire synthetic fiber industry in the early '50s. With Dacron, Du Pont has insisted that mills use at least 65% Dacron in cotton blends—and that garment makers label such garments accordingly.

Blended fabrics dominate the market now, converters say, and new-fiber producers should strive to find the right combinations for their fibers. Another point: wash-and-wear properties are no longer a plus factor; consumers now take wash-and-wear for granted.

Big Growth by '75: Still other new fibers are moving through laboratory and development stages as chemical companies contend for larger shares of the synthetic fiber business—which is expected to account for 50% of the total U. S. fiber market by 1975 (*CW Report, March 8, '58*).

Fortunes are being risked on these projects in the hope of netting the kind of returns that Chemstrand has been making since it was granted a Du Pont nylon license.

Among the prospective members of future generations of fibers: Air Reduction's Vinal, a polyvinyl alcohol fiber; Uralon, a Japanese polyurea fiber reportedly being tested by Cyanamid; Du Pont's Fiber K, an elastic fiber based on polyurethane; Union Carbide's Fiber T, based on acrylonitrile; polypropylene fibers, which are stirring substantial interest because of an anticipated low price; and modified acrylics, designed to recapture the filament yarn market.

Settling Sulfur Issues

Two more episodes in the lively affairs of the Mexican sulfur industry are scheduled during the next two weeks, both in Houston, Tex.

• On Aug. 18, stockholders of Texas International Sulphur Co. will try to hold the annual meeting that was blocked at virtually the last minute last week by court order. Two conflicts are simmering in this organization: (1) a two-way court battle between management and former Chairman M. A. S. Makris, 31-year-old financier of Miami, Fla.; and (2) a three-way proxy fight involving management, Makris, and a faction headed by a Miami druggist.

• On Aug. 25, holders of Gulf Sulphur Corp. A, B and C debentures will vote on increasing the company's long-term debt limit to $6 million.

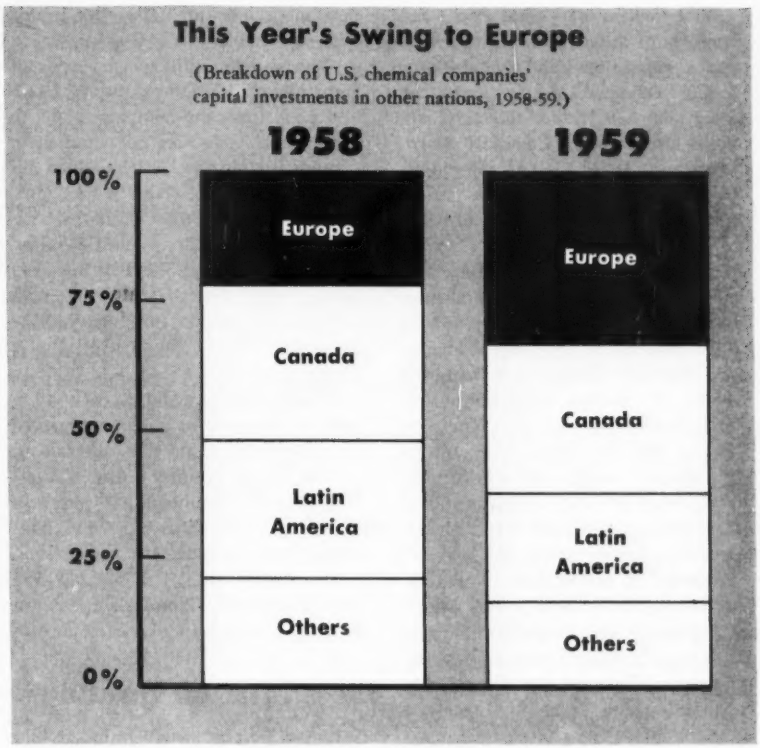
New Look at CPI's Big Foreign Buildup

There's a new and authoritative reading this week on the rate at which chemical process companies in the U.S. are upping their stake in foreign business. It shows:

- Chemical companies are increasing their capital expenditures abroad about 14% this year; and total investments in foreign facilities will probably account for more than 15% of this year's total capital outlays by U.S. makers of chemicals and allied products.
- U.S. pulp and paper companies are boosting their foreign investments this year by 32%, but these foreign investments will amount to less than 10% of these companies' total '59 outlay for new plant and equipment.
- U.S. rubber companies are raising their foreign capital spending 36% this year to a figure that may be more than 25% of their total '59 capital budgets.
- U.S. producers of stone, clay and glass products are only dabblers in foreign business, compared with other process industries; they are cutting overseas investments 27% this year to an amount that will probably be only about 4% of total '59 capital spending.

Rising Sales Foreseen: These are among the findings in a survey conducted last month by the McGraw-Hill Dept. of Economics as a new adjunct to its annual survey of capital spending in the U.S. (*CW, April 18, p. 36*). The new survey is based on replies to a questionnaire sent to numerous manufacturing and integrated petroleum companies. The companies that responded account for about 75% of all the capital spending overseas by U.S. companies in those categories.

The survey also shows that chemical process companies are more optimistic about their foreign subsidiaries this year than they are about sales gains in the U.S. For example, consensus of chemical company officers was that their foreign subsidiaries' sales would be 14% higher this year than in '58; last March, chemical companies told McGraw-Hill they expected an 11% sales rise in the U.S. Foreign chemical affiliates are expected to realize an additional 13% increase in sales next year.



Similarly, pulp and paper companies—for which a 7% sales rise in the U.S. had been forecast last March — are counting on their foreign subsidiaries to score a 9% increase this year and a further 4% gain in '60. U.S. rubber companies predicted a 9% pickup in their domestic business this year, but anticipate gains of 10% this year and 8% next year for their foreign subsidiaries.

Slower Rise in Exports: Export sales — the older method of cashing in on foreign markets — also are expected to grow. U.S. chemical companies look for their export sales to rise 4% this year, to $1,535.2 million, and an additional 1% in '60, to $1,550.6 million. Pulp and paper companies expect a 2% dip in export sales this year, but foresee a 7% increase in '60, to $318.3 million. Rubber companies' exports are slated to drop 5%, amounting to $264.4 million in both '59 and '60.

Over-all, U.S. manufacturing industries' export sales are expected to climb 1% this year, to $11,965,100, and a further 4% next year, to $12,442,900.

Right now, foreign activities seem to be of greater importance to chemical companies than to other U.S. manufacturing industries. While the chemical companies' foreign investments will run to about 15% of their total capital spending this year, the corresponding proportion for all manufacturing industries will be only about 7½%.

On the other hand, the increase in foreign outlays by all manufacturing industries this year is 26%, compared with the 14% increase by chemical companies. This might suggest that the chemical industry is a pacesetter in developing foreign business opportunities, and that various other manufacturing industries are now starting to catch up.

As of now, the companies surveyed are planning to make next year's foreign investments about the same as this year's; but the '60 total is more likely to increase than to decrease, as a number of companies said they are actively considering additional projects. And it appears that the swing to Europe may pick up still more momentum next year.

Filing for Growth Funds

Three chemical companies are planning to offer new securities to finance expansions and acquisitions. Making arrangements to enter the money market within the next six weeks are Hooker Chemical Corp. (Niagara Falls, N.Y.), Air Products, Inc. (Allentown, Pa.), and Cary Chemicals Inc. (East Brunswick, N.J.).

Hooker's board of directors has called a special stockholders' meeting Sept. 10 to vote on a proposal to confer conversion privileges on not more than $25 million in debentures. Subject to market conditions and stockholders' approval, the company plans to offer to stockholders up to $25 million worth of convertible subordinated 25-year debentures. Basis: $100 of debentures for each 30 shares of common stock held.

Proceeds of this offering would be used to carry out "substantial plans" for expansion and diversification, according to President Thomas Moffitt.

Growing Demand for Gases: Air Products—which recently received letters of intent from three steel companies concerning proposed installation of large on-site oxygen plants—expects to have to spend more than $33 million on various expansion projects between now and the end of next year. It's planning to raise something like $7 million through a new offering of 115,000 shares of $1 par value common stock and to borrow up to $25 million on secured notes.

This company was formed in '40 to develop, manufacture and operate air separation plants on or near the sites of customers' plants. Since then, Air Products has diversified into various related activities: it designs, makes and operates facilities for low-temperature generation and purification of industrial and medical gases; produces and sells such gases in pressurized and liquefied forms; produces and sells specialized cryogenic (low-temperature technique) equipment and gas welding and cutting equipment; and conducts basic and applied research in cryogenics.

PVC Producer: Cary Chemicals—now nearly six years old—plans to offer $3.5 million worth of subordinated, 20-year sinking-fund debentures and an as-yet-undisclosed number of shares of 10¢ par value common stock.

With $3.06 million in proceeds from sale of debentures and a $1-million bank loan, the company plans to triple capacity of its polyvinyl resin plant at Flemington, N.J.; acquire Regency Plastics Co. (New York); provide additional land, buildings and machinery for Cary's plastics compounding plant at East Brunswick; build a vinyl film and sheeting plant at East Brunswick for a subsidiary company, Great Bay Chemicals & Plastics.

Regency last year did a nearly $2.5-million business in sales of printed and embossed plastic film. It's said to be one of the country's three largest independent, nonintegrated finishers of polyethylene film and vinyl film, sheeting and laminates.

Cary holds 50% of the outstanding stock of Carlew Chemicals Ltd., and 29% of Chemirad Corp. stock.

Less Lithium Hauling

Potentially big savings on freight costs are behind last week's decision by Lithium Corp. of America to pull up stakes at Minneapolis, which has been home base for this company since it was founded 18 years ago.

The move will be carried out in three stages:

- In mid-October, manufacturing operations at the suburban Minneapolis location (St. Louis Park) will cease, and essential equipment will be shipped to Bessemer City, N.C., where LCA already has a $7-million lithium hydroxide plant. (Also at the North Carolina site, LCA has its principal ore reserves — an estimated 50 years' supply of spodumene.) Production of lithium metal, alloys and chemicals now made in Minnesota will begin at Bessemer City about Jan. 15.
- New research and development laboratories and a pilot plant — replacing recently enlarged facilities at St. Louis Park — are scheduled for completion at Bessemer City in April.
- And in June, LCA's headquarters staff will transfer from downtown Minneapolis to leased offices in the New York metropolitan area.

The move is expected to pay for itself within a year. A total of $800,000 has been budgeted for the move, including construction costs. More than 50% of that amount is likely to be obtained on sale of land and buildings at St. Louis Park; and next years' savings resulting from the move are estimated at $500,000.

So far, LCA has barely touched its North Carolina ore. It's using concentrates supplied by Quebec Lithium Corp., which are shipped from Canada to North Carolina to be processed into lithium hydroxide. Much of this basic product goes first to the Atomic Energy Commission's works at Oak Ridge, Tenn., for isotope separation. Some of the tailings were being returned back to Bessemer City for sale to industrial customers; another portion was hauled to Minneapolis for processing into lithium metal and other products. But from now until the AEC purchasing contract expires Dec. 31, LCA will no longer be required to buy back the tailings.

Thus, in '60, all manufacturing will be at Bessemer City, and the long hauls to Minneapolis will be eliminated. And when LCA starts mining its own ore in North Carolina—sometime within the next three years—there'll be another big saving in transportation costs.

These prospective economies are not the only bright spot in LCA's future. Even though expiration of the AEC contract will mean a notable cut in '60 sales and earnings, LCA officers are optimistic because of four other factors:

(1) By next February, the company will have paid off its $6.7-million V-loan, used to finance the Bessemer City plant. Repayment of this has cut into gross earnings by more than $120,000/month.

(2) Industrial sales are expected to increase each year, and the company has hinted that one of its R&D projects may become a money earner later this year.

(3) LCA President Herbert Rogers insists: "We have every reason to believe that the halt in government purchases is temporary — that within a reasonable time AEC buying will be resumed."

(4) Negotiations now under way concerning possible chemical acquisitions and joint ventures may lead to more diversified and better integrated operations.

COMPANIES

Vick Chemical Co. (New York) shareholders will vote at their annual meeting Oct. 20 on a 2-for-1 stock split proposed last week by the board of directors. If this is approved, the directors intend to set a new quarterly dividend rate of 25¢/share—equivalent to a 20% increase in the present annual rate.

•

Raytherm Corp. (Redwood City, Calif.) went public last fortnight with a public offering of 150,000 new shares. Offering price was $7.50/share, but within a day the stock was selling up to a peak of $17.25. Later, the price leveled at $13.50/share. The company claims to sell more than 95% of the irradiated wire and cable products sold in the U.S. For the nine months ended last March 31, Raytherm reported sales of $941,866 and earnings of $137,339. It buys polyethylene and other chemical materials, and compounds and irradiates them as tubing or coatings for wire and cable.

•

American-Saint Gobain Corp. (Pittsburgh) has revealed plans for financing construction of its $50-million plate glass plant at Greenland, Tenn. (*CW Business Newsletter, Aug. 1*). The plans include selling 6% first-mortgage bonds to Prudential Insurance Co. for up to $33 million; selling $11.2-million worth of 5½% subordinated convertible debentures; and selling 543,141 shares of $7.50 par value common stock. The parent company—Compagnie de Saint-Gobain (Paris)—will buy $6.4 million worth of the debentures and 428,000 shares of the common stock at $17.30/share. Other shareholders have first chance to subscribe to the rest of the new debentures and stock.

•

Gould-National Batteries (Trenton, N. J.) has moved its nickel-cadmium sealed-cell production operations from Depew, N. Y., to 27,500-sq. ft. leased quarters at St. Paul, Minn.

EXPANSION

Nuclear Reactor Fuel: General Electric Co. has started preliminary engineering work for new chemical processing facilities at the Atomic Energy Commission's Hanford Works near Richland, Wash. The $6-million unit—to be completed by early 1961—will reprocess spent fuel elements from reactors being built for power generation throughout the nation. Uranium and plutonium will be separated by solvent extraction in Hanford's Redox plant, and uranium solutions will be processed to oxide powder in another building.

•

Ethane, Propane, Butane: New recovery units for ethane, propane and butane are being placed in operation following completion of a $3.2-million expansion project at the natural gas processing plant run by Arkansas Louisiana Chemical Corp., near Magnolia, Ark.

•

Detergent, Bleach: Purex Corp. (South Gate, Calif.) is expanding the plant at Bristol, Pa., acquired from Manhattan Soap Co. and is building a new plant at Atlanta, Ga.

At Bristol, the company is installing a drying tower for production of detergent and a granular bleaching compound. At Atlanta, the new 30,000-sq. ft. structure—combining offices, warehouse and manufacturing facilities—will replace an outgrown building in nearby Eastpoint. Principal product: liquid bleach. Both projects are to be completed by January.

FOREIGN

Fluorspar/Mexico: Dow Chemical Co.'s subsidiary, La Dominicia S. A. de C. V., will build a fluorspar flotation plant to produce acid-grade fluorspar. The unit will be completed about April '60.

•

Resins/France: A new concern — Progil-Bayer-Ugine—is being formed in Paris to produce and sell isocyanates, polyesters and polyethers. A plant will be built at Grenoble, and some of the output will be exported. Parent companies of the new firm: Farbenfabriken Bayer AG. (Leverkusen, Germany); Societe d'Electrochemie, d'Electrometallurgie et des Acieries Electriques d'Ugine (Paris); and Progil S. A. (Paris). Bayer will provide 50% of the share capital.

•

Specialties/Morocco: Unilever is setting up a new subsidiary in Casablanca to produce synthetic detergents, edible fats and certain toilet preparations. The new venture will be known as Unilever Maroc, and its $1.4-million plant—to be completed late this year—will supply products now imported from Unilever plants in Britain and the Netherlands.

•

Cellulose/Argentina: A $1.5-million cellulose plant has been proposed for Buenos Aires province by Heinrich Meyer GmbH. (Wiesbaden, Germany). Construction is to start within three months and be completed by 1961. Capacity: 140 tons/day.

•

Plastics/Britain: Production of plastic materials in the United Kingdom reached an all-time high during the first three months of this year; but sales slipped 1% from the previous quarter, to 112,300 tons.

•

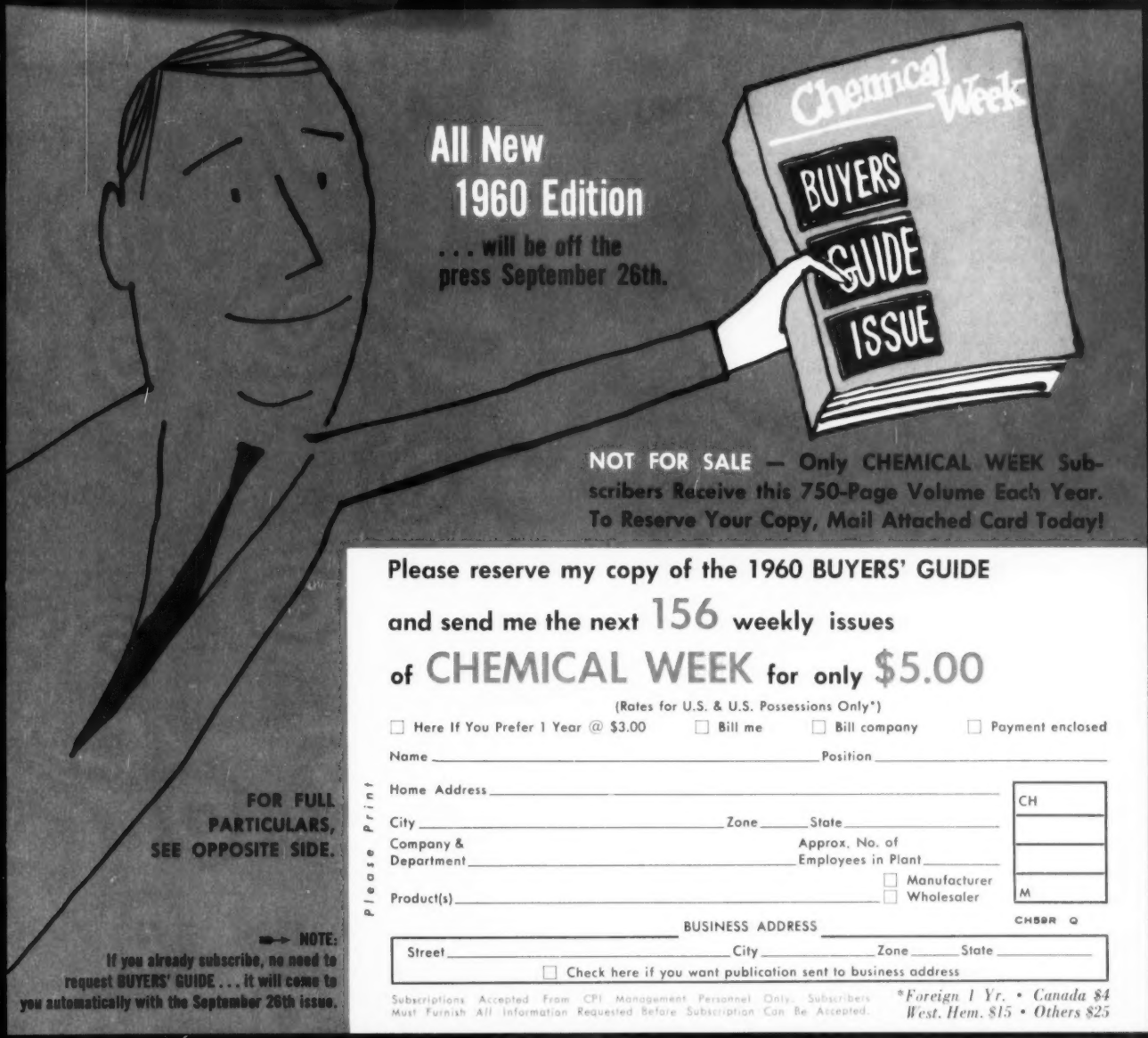
Citric Acid/Mexico: Industrias Quimicas—36% owned by Stauffer Chemical (New York)—is about to purchase a site for what it says will be Mexico's first citric acid fermentation plant. The unit is to be completed by next spring, and is expected to be adequate for Mexico's present citric acid needs.

this may fit into YOUR PLANS

Due to DIXON's continued expansion plans in which is included the world's largest Sludge Regeneration Sulfuric Acid plant at Paulsboro, N. J., our operations no longer require this smaller unit located at this site.

We will welcome your inquiry. Write, wire or call:

Mr. Robert D. Buckalew, *Vice President*
Dixon Chemical Industries, Inc.
1260 Broad Street
Bloomfield, New Jersey
EDison 8-4000



All New 1960 Edition

. . . will be off the press September 26th.

NOT FOR SALE — Only CHEMICAL WEEK Subscribers Receive this 750-Page Volume Each Year. To Reserve Your Copy, Mail Attached Card Today!

FOR FULL PARTICULARS, SEE OPPOSITE SIDE.

➡ NOTE:
If you already subscribe, no need to request BUYERS' GUIDE . . . it will come to you automatically with the September 26th issue.

Please reserve my copy of the 1960 BUYERS' GUIDE and send me the next 156 weekly issues of CHEMICAL WEEK for only $5.00

(Rates for U.S. & U.S. Possessions Only*)

☐ Here If You Prefer 1 Year @ $3.00 ☐ Bill me ☐ Bill company ☐ Payment enclosed

Please Print

Name _____ Position _____

Home Address _____

City _____ Zone _____ State _____

Company & Department _____ Approx. No. of Employees in Plant _____

Product(s) _____ ☐ Manufacturer ☐ Wholesaler

CH
M

CH58R Q

BUSINESS ADDRESS _____

Street _____ City _____ Zone _____ State _____

☐ Check here if you want publication sent to business address

Subscriptions Accepted From CPI Management Personnel Only. Subscribers Must Furnish All Information Requested Before Subscription Can Be Accepted.

Foreign 1 Yr. • Canada $4 West. Hem. $15 • Others $25

At Your Fingertips . . .

12 Complete Directories in One 750-Page Volume . . . To Answer All Your Chemicals and Equipment Buying Questions.

CHEMICALS

CHEMICALS & MATERIALS DIRECTORY — over 7,000 product headings, with all major producers and distributors listed . . . TRADE NAMES DIRECTORY — the most complete list of chemical trade names available, with concise descriptions and company names . . . COMPANY DIRECTORY — listing all producers and distributors; their home, branch and district offices; complete with telephone numbers . . . CATALOG SECTION — details complete company product lines.

EQUIPMENT

EQUIPMENT, CONTAINERS AND SUPPLIES DIRECTORY — upwards of 2,000 categories vital to the CPI, with all major manufacturers and suppliers listed . . . TRADE NAMES DIRECTORY — comprehensive listing, with descriptions and company names . . . COMPANY DIRECTORY — listing of all manufacturers and suppliers; their home, branch and district offices; complete with telephone numbers . . . USED EQUIPMENT DIRECTORY — listed by equipment category with a "Buyers' Guide" of dealers . . . CATALOG SECTION — details complete company product lines.

SERVICES

SERVICES DIRECTORY — listing of over 200 CPI services, by category, with names of firms providing services . . . COMPANY DIRECTORY — listing of companies offering services, with addresses and telephone numbers . . . CATALOG SECTION — "tell-all" catalog of companies providing services, detailing complete industry services.

PLEASE NOTE — Only enough copies of the BUYERS' GUIDE are published to supply one to each subscriber. No single copies are sold. To get your copy, return this card now.

FIRST CLASS
PERMIT No. 64
NEW YORK, N. Y.

BUSINESS REPLY MAIL
No Postage Stamp Necessary if Mailed in The United States

McGRAW-HILL PUBLISHING CO., INC.

CHEMICAL WEEK
330 WEST 42nd STREET
NEW YORK 36, N. Y.

Washington
Newsletter

CHEMICAL WEEK
August 15, 1959

Another Pentagon budget squeeze is in the works. The upshot will be a series of cuts or cancellations in projects to develop new missiles.

Behind this latest economy push is Eisenhower's intent to have a respectable budget surplus during his last year in office. Thus, the Defense Dept. has been ordered to hold spending in fiscal '61 (starting July 1, '60) to the $41-billion level estimated for the current '60 fiscal year—and the same rate recorded in fiscal '59 just ended. (Planning of the fiscal '61 budget is now under way.)

But increased military spending next year appears inevitable. Major projects such as the Air Force's Minuteman ICBM, the Dyna-Soar spacecraft, and the chemically fueled F-108 and B-70 planes have reached the crucial stage where big boosts in funds are needed to advance from the design stage to early fabrication of hardware.

To hold to the $41-billion expenditure level, the Pentagon will be unable to bring such projects along as fast as scheduled, and at the same time maintain production of the Atlas, Titan and Polaris missiles and other costly items at scheduled rates.

•

A new tone of hostility toward military contractors is obvious in Washington.

You see it in the latest Congressional investigations into the hiring of retired generals and admirals by industry, into the concentration of military business among fewer firms, and into alleged curbs on competition under the Air Force's "weapon system management" scheme, which centralizes controls over big projects.

Then, too, there have been the General Accounting Office's claims that the Pentagon was "overcharged" a total of $42.2 million in 26 big contracts in recent years; the President's growl about efforts of a "munitions lobby" to sway military decisions; and the venerable charges about excessive profits on arms production and the decline in contract awards to small business.

Outlook: a big drive to clamp new controls on contractors—on the ways they land business, the amount of profit they earn, the ways in which they run their business.

It's too late for significant Congressional action this year. But restrictive measures will surely be enacted in 1960.

Meanwhile, the Air Force has taken action on its own. First, it's watering down the powers of weapon system prime contractors, stressing competition on subcontracts and direct government awards on major subsystems. Second, it is tightening up on verification of cost estimates submitted by contractors.

Washington Newsletter

(Continued)

The Tennessee Valley Authority will expand power facilities as quickly as possible, now that the hassle between Congress and President Eisenhower about financing details has been settled.

Washington expects TVA to go into the money market within the next 90 days for $200-250 million to pay for new steam-powered electric facilities. Much of this will be used to speed work on the Widows Creek steam plant—an installation that may wind up as the biggest of its kind in the world.

•

Research on effects of pesticides on wildlife would be hiked 10-fold in appropriation bills taken up by Senate and House committees last week. No one appeared in opposition to the boost requested by the Fish and Wildlife Service.

The bills, backed by Sen. Warren Magnuson (D., Wash.) and Rep. Lee Metcalf (D., Mont.), would step up research from $280,000 to $2.5 million/year to keep pace with the tremendous increase in the use of pesticides. The National Agricultural Chemicals Assn. urged that any government research programs be coordinated with research already being conducted by the chemical industry.

•

Uniform regulation of agricultural chemicals is provided in a new law covering defoliants, desiccants, plant regulators and nematocides. It provides the same coverage on labeling and permitted tolerances for these chemicals as for insecticides, fungicides and rodenticides.

Under the old regulations, some chemicals (e.g., 2,4-D) that could qualify as both pesticides and plant regulators would come under double regulation. The measure will have no practical effect on the farmer or consumer—but it means less cumbersome regulation for the manufacturer. There are about 4,000 products in the newer group of plant chemicals.

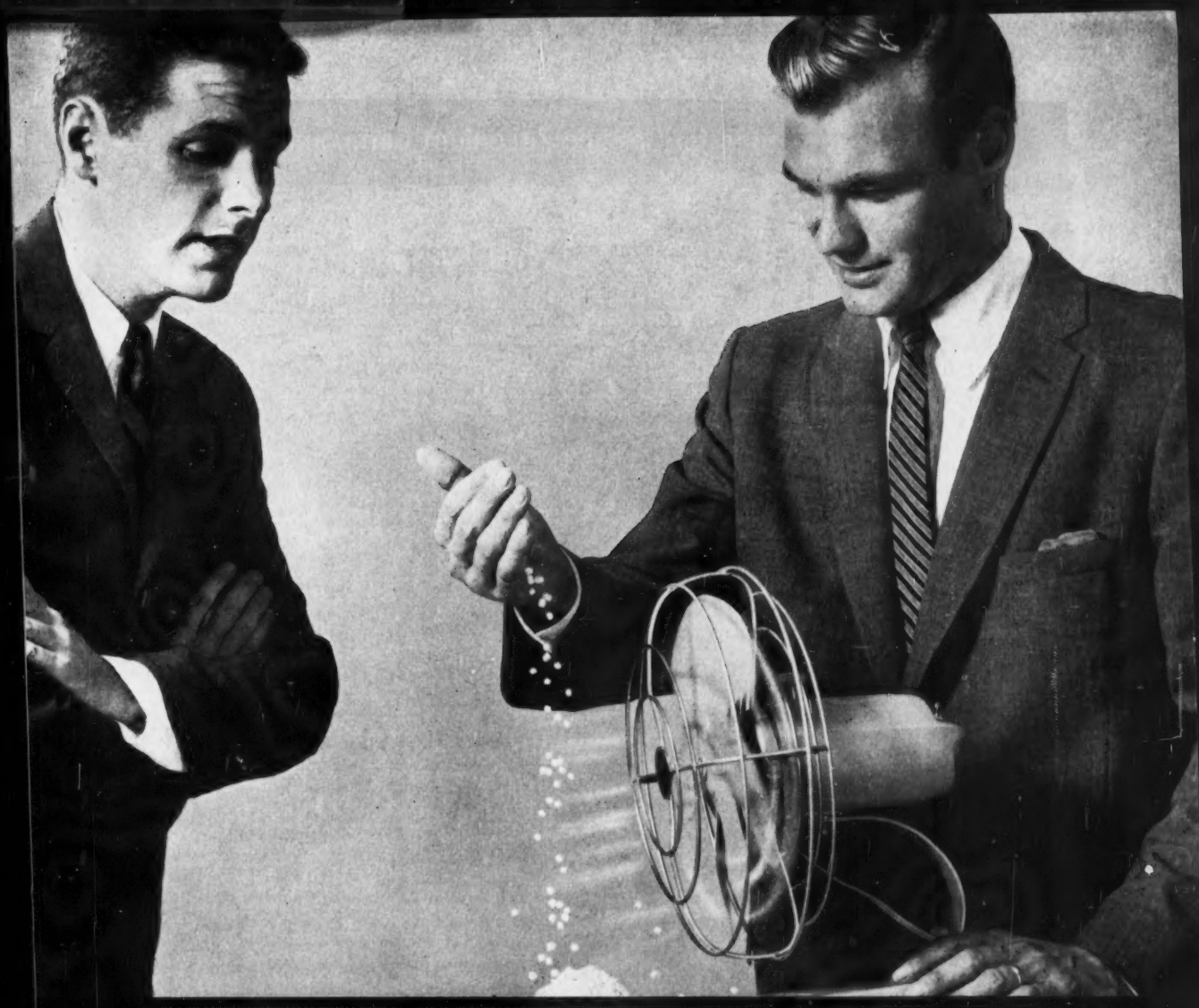
•

A symposium on the reprocessing of nuclear fuels will be held in Richland, Wash., Oct. 20-21. The meeting, sponsored by the Atomic Energy Commission, is designed to review the technology currently available for reprocessing spent fuels from research reactors, test and power reactors. It will be open to management and technical personnel from industry.

•

AEC will have to cut back plans for isotope development work in the 12 months that began July 1. The appropriations bill voted by Congress reduced requested funds by one-third, to $4 million.

Meanwhile, AEC has awarded 22 new contracts totaling $800,000 for development of new and improved industrial uses of radioisotopes and high-level radiation. Westinghouse, for example, will work on development of transparent polyethylene by nuclear irradiation. And Tracer-Lab, Inc., will develop radiochemical methods of detecting and analyzing nonradioactive gases.



PELLETIZED PENTAERYTHRITOL

You can see . . . No dusting!

Nice set-up, but couldn't you just blow on the pellets?

Might run out of breath—and there's so much to tell!

Such as?

Ease of handling. Non-stop reactor runs.

Meaning . . .?

The amount of pelletized PE you weigh out is the amount you charge into the reactor. No dust losses! No more interruption of cooking cycles to add more of the polyol!

So?

So, shorter cook time and faster output of alkyd resins.

Interesting! What more?

No dust means reduced hazard of explosion or fire.

What about product quality . . .

Pellets are less exposed to hot reactor surfaces and air. You can produce better resins of lighter color.

. . . and economy?

Pelletized PE saves materials, storage, and time . . . raises efficiency and cuts cost of your operations.

Is that an order blank you're reaching for?

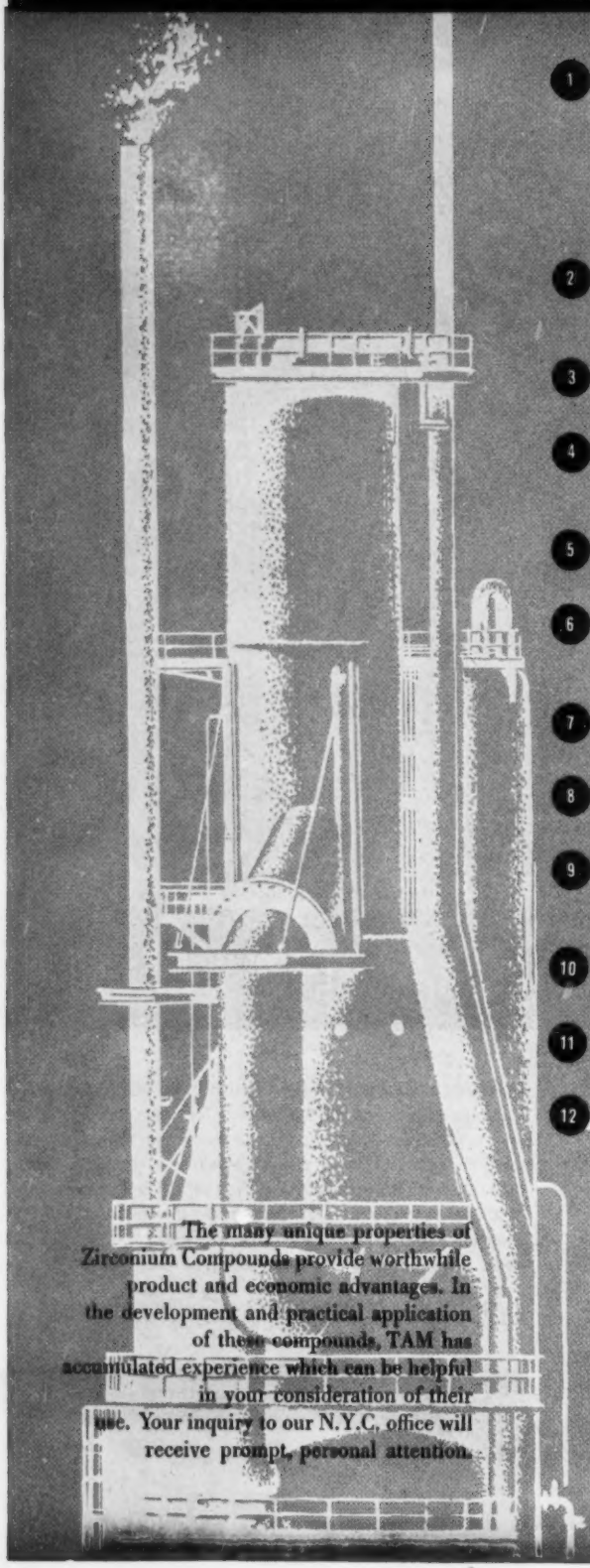
No, the fan switch. I always get that warm feeling when I talk about our pelletized PE!

Hold that enthusiasm, feller! You still haven't told about the new, continuous process developed by Celanese that gives our pentaerythritol its high purity, nor the extremely low ash content, uniform composition, and virtual absence of formals, acetals, and other organic impurities. And mention the better alkyd resins and coatings, varnishes, and synthetic drying oils our PE makes possible. Celanese Corporation of America, Chemical Division, Dept. 180 Madison Avenue, New York 16, N. Y. Celanese®

Canadian Affiliates: Canadian Chemical Company Limited, Montreal, Toronto, Vancouver.
Export Sales: Amcel Co., Inc., and Pan Amcel Co., Inc., 180 Madison Ave., New York 16.

Celanese
CHEMICALS

12 Commercial uses for Specific Zirconium Compounds



1. **Preparation of Water Repellants for textiles, paper, etc.**
   Ammonium Zirconyl Carbonate Solution
   Zirconium Acetate Solution
   Zirconium Oxychloride
   H. P. Zirconium Oxychloride
   C. P. Zirconium Oxychloride
2. **Catalytic Applications**
   Zirconium Acetate Solution
   Zirconium Tetrachloride
3. **Catalytic Accelerators**
   Zirconium Sulphate
4. **Lakes and Toners, Precipitation of Dyes**
   Zirconium Oxychloride
   H. P. Zirconium Oxychloride
5. **Stabilization of Latex base paints**
   Ammonium Zirconyl Carbonate Solution
6. **Filler in resins, plastics, synthetic rubbers, lacquers, varnishes**
   TAM Superpax®
7. **Preparation of Ceramic Pigments**
   Basic Zirconyl Sulphate
8. **Preparation of Organic Complexes**
   Zirconium Tetrachloride
9. **Absorbent of organic and inorganic substances**
   Special Hydrous Zirconia
10. **Ingredient in poison ivy ointments**
    Carbonated Hydrous Zirconia
11. **Preparation of Anti-Perspirants**
    H. P. Zirconium Oxychloride
12. **Preparation of Personal Deodorants**
    Sodium Zirconium Glycolate
    Sodium Zirconium Lactate Solution
    Zirconium Glycolate
    Zirconium Lactate

The many unique properties of Zirconium Compounds provide worthwhile product and economic advantages. In the development and practical application of these compounds, TAM has accumulated experience which can be helpful in your consideration of their use. Your inquiry to our N.Y.C. office will receive prompt, personal attention.

TAM

DIVISION NATIONAL LEAD COMPANY

Executive and Sales Offices: 111 Broadway, New York City
General Offices, Works and Research Laboratories:
Niagara Falls, New York

Small Labs Weigh New Pay Plans

This week Resins Research Laboratories Inc. (Newark, N.J.) is polishing up a new dividend plan for its 23 staffers. Like many other small labs, the firm is finding that money, in the shape of one "plan" or another, is an increasingly important factor in getting and keeping a full staff of top-quality researchers.

CW has found, in its study of the smaller labs across the nation, that the storied advantages of the small company—variety of work, greater individual recognition and responsibility—don't always hold employees if salaries competitive with those of larger labs aren't paid. If the "cash" salaries aren't equal or larger, fringe benefits are often emphasized. The nature of the benefits can be tailored to fit the group's desires.

For example, Charles West, who founded Resins Research five years ago on a stake of $3,000, describes his company's brand-new plan as "a point system based on profits, new business, and the cooperative effort put forth by the entire lab." Under the plan, group leaders evaluate individuals' attitudes and contributions "on a general basis" each month. Quarterly dividends are distributed on the basis of an individual's merit and his group's success.

But Resins Research has not skimped on straight salary. "We have attracted top-notch talent by offering a bit more money," West says. With an attractive salary scale, RR gets many applications—about 400 apply for each opening. And it can select people who aren't interested solely in increasing their earnings.

"A new ethic in professional relations is what we are trying to build," West avers, "and I think that, while the new profit-sharing plan will help achieve this, satisfaction in the work, technically and professionally, is important, too."

Retirement Lure: Other lab directors that favor fringe benefit plans include Roger Truesdail, president of Truesdail Laboratories (Los Angeles), and Jesse Weinberg, lab manager of Food and Drug Research Laboratories, Inc. (Maspeth, N.Y.). Their liberal retirement plans are supported entirely by the company. At FDRL, the amount placed in the fund is based on a profit formula. Employees are reimbursed on resignation. On death, the proceeds go to the employee's family. Truesdail's plan also provides disability and death benefits. It also permits a liberal cash surrender value to the employee upon resignation or discharge prior to retirement.

Salary First: Others stick by ample salaries as the best way to draw their staffs. "We keep good people by offering them more money than the big corporations," says J. C. Calandra, president of Industrial Bio-Test Laboratories (Northbrook, Ill.). But he admits that the company can't match the fringe benefits offered by larger firms.

The company has trouble getting trained toxicologists, so it trains its own. With this additional investment in personnel, Calandra adds, "we can't afford to lose people by not paying higher salaries."

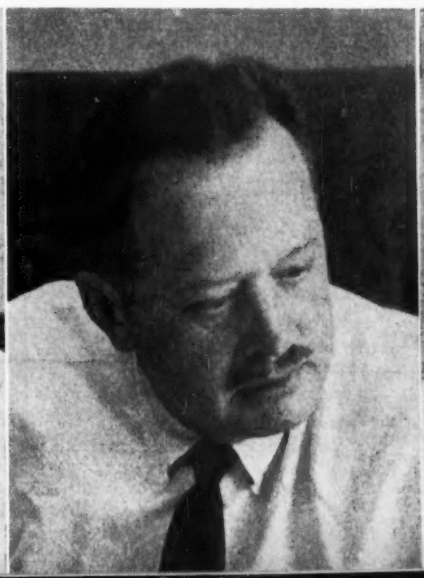
Harris Research Laboratories, Inc. (Washington), is in an unusual position—it is a small lab, but it can offer the pay and benefits of a large company because it is a wholly owned subsidiary of a large one, Gillette. It has kept its annual turnover down to about 2% of its 62 employees. Among the special plans offered: the company adds 50¢ to every dollar of the employee's salary that is used

Resins Research Labs.' West: Extra compensation pays dividends.

'We have attracted top-notch talent by offering a bit more money.'

'We are trying to build a new ethic in professional relations.'

CW PHOTOS—EDWARD WALLOWITCH



Whether it's a routine control analysis of an alloy, an environmental test of a "black box", or a complete structural and operating evaluation...whether it's appliances or batteries or turbines or valves...you get more from the **integrated laboratories** of United States Testing Company. Multi-million dollar facilities...career test engineers...a wealth of experience in your field...all these save you costly investment in laboratory equipment and give you top-quality testing and R/D services. Check *your* needs against the facilities and services available.

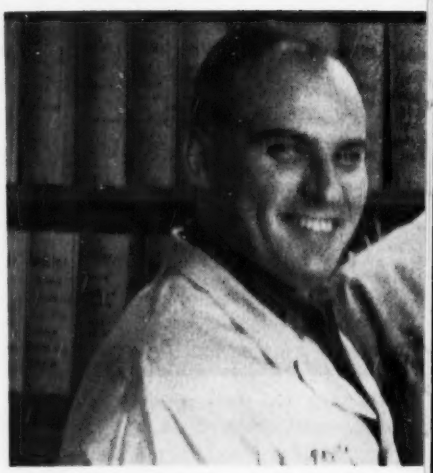
Send For Free Facilities Bulletin.

PHE-5

The World's Most Diversified Independent Laboratory.

United States Testing Co., Inc.
1415 Park Avenue, Hoboken, N. J.

Branch Laboratories | BOSTON • BROWNSVILLE • DALLAS • DENVER • LOS ANGELES MEMPHIS • NEW YORK • PHILADELPHIA • PROVIDENCE • TULSA



Camaraderie typical of small laboratory staffs is displayed by

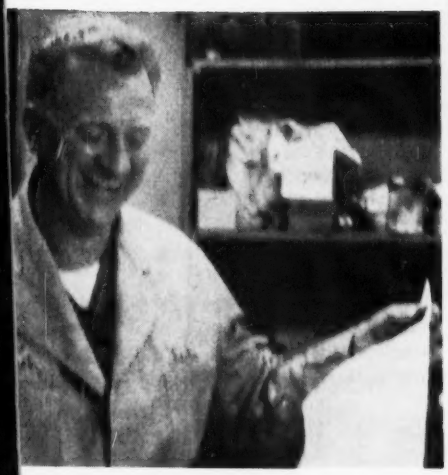
to buy Gillette stock and bonds (up to 8% of salary).

Harris has a handy source of recruits in government services in the Washington area. These scientists can transfer to Harris without relocating, frequently continue government work as consultants.

More than Money: The contentment that researchers find in small labs has many facets, of course, of which financial gain is only one. Hamilton Pinkalla, president of American Bio-Synthetics Inc. (Milwaukee), recalls, "I worked for one of the biggest firms in the country, was treated marvelously, had an excellent salary, but had the feeling that if I were gone for a month I'd never be missed." Pinkalla believes this lack of identification is shared by many others in big labs, says that "the difference in pay scale between large and small companies isn't large enough to scare people away from firms like ours."

Comments from staffers at various small labs bear this out: "I'd rather work for this [smaller] firm because here the work I do has some significance"; "Lower pay, yes, but they told me I could go no further in the big firm I came from unless I got a Ph.D. degree. Here I can make group leader"; "The first-name atmosphere is really welcome, makes for better creativity"; "I like the informality and flexibility of a small organization."

Success Formula: The combination of good pay and attention to the individual has helped many small labs



Resin Research chemists Abraham Tenzer (left) and Howard Leiner.

survive the droughts of scientific manpower during the past decade. Camaraderie among its staffers has helped Resins Research enthusiastically tackle and solve resin and polymer research problems for such big companies as Esso, Burroughs, Sinclair Refining, Armour, and Carborundum. Turnover, as with many small labs, is light.

Occasionally, though, some staffers find they prefer a bigger company. But there's a plus in this for the small lab: these "alumni" frequently help get research jobs for their independent "alma mater."

The smaller laboratories' attraction of researchers is being watched by big firms, some of whom see it as an argument for more decentralization. On the other hand, the small lab is learning that it takes money to build a top-flight staff and keep it.

Safeguarding Research

Russia has mounted a campaign to impress newly developing areas with its medical research, and thus the U.S. should exercise caution in any cooperation with Russia beyond basic research and exchange projects, Merck President John Connor warned Congress last week.

Testifying in support of the proposed International Health and Medical Research Act of 1959, which Congress is currently considering, Connor said the proposed program "will open up new avenues for research discoveries under conditions not possible in the U.S. alone." But

Strike the right filtration

Chromatography
Catalyst Recovery
Rubber
Chemicals

and processing note with

Petroleum
Pharmaceuticals
Metals
Adhesives

SOLKA-FLOC®

Plastics
Food
Textiles
Flooring

Get better, faster, safer filtration with economical SOLKA-FLOC. This versatile, finely divided cellulose is proving its outstanding superiority as a filter aid in a long list of applications.

SOLKA-FLOC provides a greater, more economical volume of clarified filtrate, trapping the most minute suspended solids. It makes a stable pre-coat, does not "bleed." There's no cake loss due to pressure drop, and it does not abrade pumps and valves. There's minimum retention of filtrate in the filter cake. It effectively adsorbs many metals such as iron, copper, other impurities. Valuable solids can be recovered by burning.

Many other important applications include its use as a money-saving processing aid, filler, binder or extender in rubber, plastics, and pharmaceuticals... as an adsorbent in chromatography... and as a basic material in the manufacture of chemical derivatives of cellulose.

Let us show you how SOLKA-FLOC* will do a better job for your product or process. Write Dept. FC-8, our Boston office.

BROWN COMPANY

Berlin, New Hampshire

General Sales Office:
150 Causeway Street, Boston 14, Mass.

*Sold in Canada by Brown Forest Products, Ltd., Montreal, Que., (Alpha-Floc)

MATHIESON

ammonia

(NH_3)

N

National distribution from major producing points at Lake Charles, La., Marcus Hook, Pa., Niagara Falls, N.Y., and Louisiana, Mo., assures dependable supply.

H

High purity in all grades. Anhydrous—refrigeration grade, commercial grade, and aqua—26° Bé (29.4%).

H

Helpful technical service assures economical handling, storing, using.

H

Have a talk with your purchasing department today—then call Olin Mathieson.

MATHIESON

OLIN MATHIESON
CHEMICAL CORPORATION
Chemicals Division · Baltimore 3, Md.

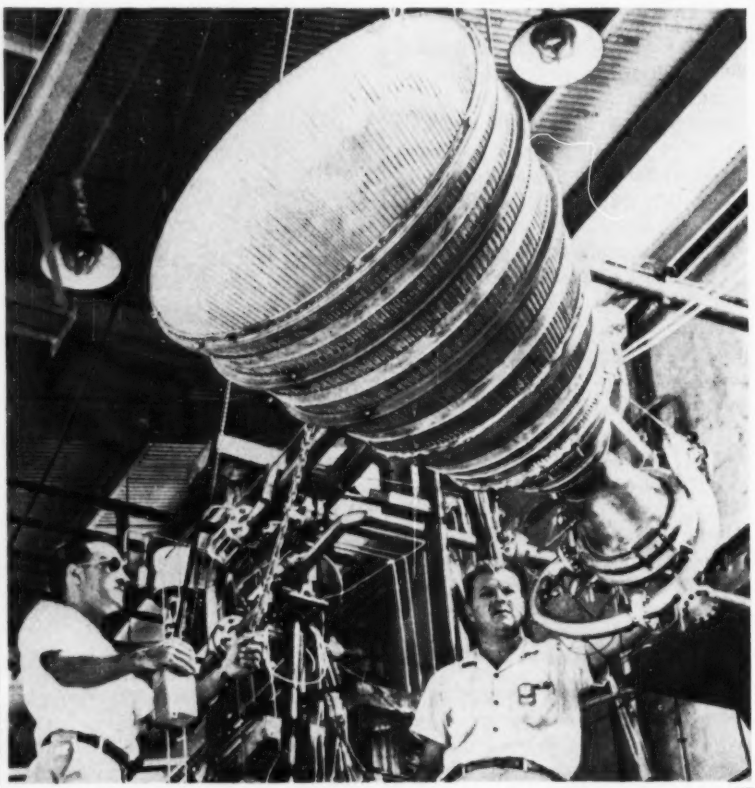
6842

Connor warned: "We must not lightly trade away the important technical resources of our pharmaceutical and chemical industries. If we should bargain away our hard-won research knowledge, technical skills and production know-how, we will be handing over to Russia a valuable national asset. We would permit the Russians to free thousands of skilled scientists, engineers and technicians for military development and economic warfare, instead of taking the sensible course of requiring them to expend their own time, effort and resources in developing pharmaceutical and chemical know-how as we have had to do."

Connor told Congressmen that the proposed measure, by opening new avenues of knowledge to American medical researchers, would bolster U.S. foreign policy and protect and advance the health of Americans.

Connor urged inclusion in the Research Act, which has already passed the Senate by a 63-17 vote, of provision for (1) research teams to survey health problems in newly developing areas; (2) research in the science of public health; and (3) expanded training of nurses, hospital and clinical technicians, and other members of an effective health team.

The research team should establish priorities for the medical research and assistance that can be most fruitful in each country, Connor believes. And he recommends that every effort should be made to enlist leading private physicians and research specialists as members of these teams.



UPI

Setting the Stage for Hydrogen Power

Ready for firing, this thrust chamber of an XLR-115-P-1 liquid hydrogen, 15,000-lb.-thrust rocket engine is lifted onto a test stand at Pratt & Whitney Research Center (West Palm Beach, Fla.). Two of the engines, first to use the liquid hydrogen-liquid oxygen propellent system, will power the Convair Centaur, upper stage of the Saturn space vehicle. First stage will be propelled by a cluster of eight 150,000-lb.-thrust (RP-1 hydrocarbon and liquid oxygen) Rocketdyne engines. Future liquid hydrogen power plants are expected to produce over 300,000-lb. thrust.

Progress Report...

— FLEXOL Plasticizer 380
— Primary amyl acetate
— Isopropyl amine

Isophthalate plasticizer price cut

Processors of vinyl plastics who have been thinking of switching to an isophthalate-type plasticizer will want to take advantage of a price reduction in CARBIDE's FLEXOL Plasticizer 380. The new price of 27¢ a pound applies to orders in tank car quantities.

FLEXOL Plasticizer 380 — di(2-ethylhexyl) isophthalate — has uses in all branches of the plastics industry, especially where the finished product must be highly resistant to nitrocellulose lacquer marring. Lamp cords, furniture and automobile upholstery, doll parts and toys, balls, handbags, outerwear, tablecloths and place mats, and sponges are some of the many vinyl products that benefit from formulations with this isophthalate plasticizer.

A few important performance properties of a vinyl film formulated from 100 parts of resin and 50 parts of FLEXOL Plasticizer 380 are . . .

Loss from 0.004-in. film:	
Volatile loss (24 hr. at 70° C.), %	2.6
Water extraction (24 hr. at 70° C.), %	2.0
Oil extraction (50° C., K)	1.4
Lacquer marring (24 hr. at 40° C.), %	10
Rub-off (50° C., K)	1.7
Spew (2 weeks at 60° C., 100% rel. hum.)	none

Vinyl plastics formulated with FLEXOL 380 exhibit greater mar resistance than those made with any other commercially available monomeric. FLEXOL 380 contributes top plasticizing efficiency with valuable low temperature and electrical characteristics. It is low in volatility, and is completely compatible with vinyl chloride resins. Low initial viscosity and excellent viscosity stability are other favorable features of plastisols prepared from FLEXOL 380.

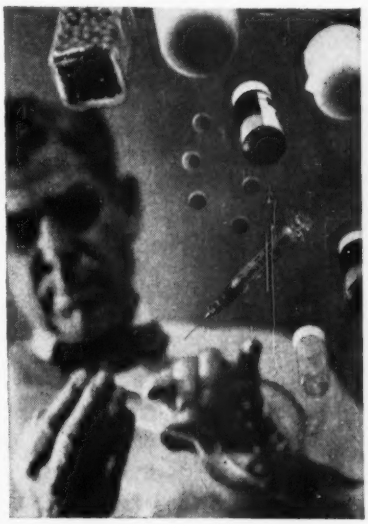
For a technical bulletin listing specifications, properties, and performance data, please use the coupon.

Want to step up drug yields?

More efficient extraction solvents are now helping to increase production of penicillin and other antibiotics. One of the best is primary amyl acetate.

Primary amyl acetate is a highly selective solvent. This selectivity permits recovery of pure product without contamination by highly colored or other undesirable impurities.

Solvent losses are low with this low-cost ester. Primary amyl acetate's high ester content (98-100%), medium-high boiling point (135-150°C.), and very low solubility in water result in minimum solvent losses. Make-up requirements and costs are minimized. And primary amyl acetate is easy to recover by azeotropic distillation.



Primary amyl acetate contains only about one per cent alcohol and is free of low-boiling secondary amyl, butyl, and isobutyl esters. And CARBIDE's expanding production assures a continuing supply of this unique all-primary amyl ester.

The advantages of this extraction solvent can result in cost savings and extra profits in your extraction processes. Your CARBIDE representative can supply detailed information on the use of primary amyl acetate and help in evaluating this extractant.

For better herbicides . . . isopropyl amine

Isopropyl amine is used to make a water-soluble crystalline salt of 2,4-D, the widely-used herbicide. Because of the low equivalent weight of isopropyl amine, only 59 pounds are needed for every 221 pounds of 2,4-D. And, since the isopropyl salt is a crystalline solid, it is easily packaged for distribution.

The citrate salt of isopropyl amine is also frequently mixed with the herbicide (U. S. Patent 2,694,625) because it sequesters hard water salts that might interfere with the functioning of 2,4-D.

Much more information on the applications of CARBIDE's isopropyl amine is available in a technical bulletin just released. Check the coupon for your copy.

Tear out this coupon. Check the boxes on which you'd like more information, and mail to **Dept. HW,** Union Carbide Chemicals Company, 30 East 42nd Street, New York 17, N. Y.

- ☐ FLEXOL 380 Bulletin
- ☐ Isopropyl Amine
- ☐ 1959 Physical Properties of Synthetic Organic Chemicals—a comprehensive description of the properties and applications of more than 400 CARBIDE chemicals.

Name _____

Position _____

Company _____

Street _____

City _____ Zone _____

State _____

And remember, there is a CARBIDE sales office near you where you can obtain the services of a CARBIDE Technical Representative. His wide industry experience is backed both by extensive chemical training and by Technical Specialists.

"Flexol" and "Union Carbide" are registered trademarks of Union Carbide Corporation.

UNION CARBIDE CHEMICALS COMPANY
DIVISION OF
UNION CARBIDE CORPORATION

NOW IN PRODUCTION: stronger, safer, heavy duty polyethylene bags for packaging hygroscopic chemicals!

These new heavy duty, 100% polyethylene bags offer special advantages for chemical packaging: (1) the polyethylene is chemically inert, unaffected by most chemicals; (2) the bags are waterproof, and their exclusive Chipp-a-Weld seal is virtually as strong as the polyethylene itself; (3) Shipping experience has proved the bags reduce breakage to less than ¼ of 1% (and punctures or breaks that did occur did not spread). The bags can be made in any size to fit your bulk packaging requirements, and printed in 4 colors. This new bag was developed and perfected by Chippewa Plastics—leader in polyethylene research, technical know-how, and the development of specialized equipment for quality-controlled mass production. Certain chemicals have already been approved for interstate shipment. Test permits have been issued for many others. Chippewa engineers can help improve your packaging operations because of their specialized knowledge gained in developing heavy duty polyethylene bags and closure techniques. For further information, contact:

Department of Chemical Packaging
CHIPPEWA PLASTICS CO.
Division of Rexall Drug and Chemical Company
Chippewa Falls, Wisconsin

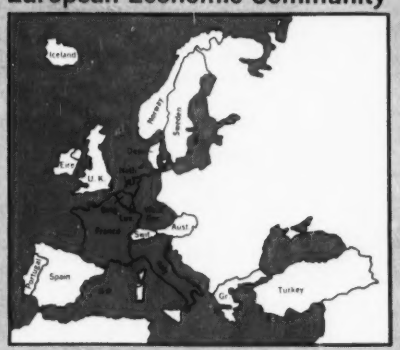
The mark of leadership

Integrating Toward 18-Nation Free-Trade Area

Europe's latest economic bloc, the "Outer Seven," is seen as a significant move toward a free-trade area composed of the Outer Seven and the six EEC countries, followed by formation of an All-European Free-Trade Area of 18 countries.

"Outer Seven"

European Economic Community



All-European Free-Trade Area

European Gamble for Economic Merger

This fall, parliaments of the United Kingdom, Norway, Sweden, Denmark, Switzerland, Austria and Portugal are expected to ratify a treaty creating western Europe's newest economically integrated market—the "Little Free Trade Area" or "Outer Seven," composed of 90 million people and with an estimated gross national product of $90 billion.

Significant to U.S. chemical process industries management this week are these factors: (1) the Little Free Trade Area (LFTA) is a step toward an all-European free-trade area (*see map*) encompassing 300 million people and including the Outer Seven, the European Economic Community ("Common Market") and five other countries that make up the Organization for European Economic Cooperation (OEEC); (2) thus, it's too early to tell whether U.S. investments separate from those now in Common Market countries will be necessary to supply markets.

Calculated Risk: Why was LFTA set up? On the surface, it's an attempt by seven countries to promote commerce between themselves by gradually eliminating tariffs and quotas. Beneath that, observers agree, it's an attempt, involving a calculated risk, to force the European Economic Community into further negotiations on a larger free-trade area, including the 13 nations of the two blocs. Later, it could encompass the 18 nations of the OEEC.

Obviously, the risk arises from the fact that the move might push the two blocs farther apart instead of bringing them together. Though most EEC members want a larger free-trade area, France squelched such hopes back in Dec. '58 (*see table, p. 42*). Establishment of the new group may well cause protectionist France to become more firmly set against a large free-trade area.

On the other hand, member countries of EEC and LFTA are already closely linked, economically. EEC countries—West Germany, France,

Europe's 'Little Free-Trade Area'

How it came about, timetable for growth . . .

Dec. '58—France rejects free-trade area after negotiating 18 months

March '59—"Little Free-Trade Area" idea explored

May '59—Committee set up to draft plan

June '59—Basic plan accepted at Stockholm

Oct. '59—First report of experts to be submitted to ministers, ratification of treaty by seven participants expected

Jan. '60—LFTA officially in existence

July '60—First general tariff reduction—20%

Fall of '60—Negotiations for integration of LFTA, EEC

'62—Integration of LFTA and EEC to form 13-nation free-trade area, springboard for 18-nation area based on OEEC

Its chemical significance . . .		*Compared with EEC '58*	*Compared with U.S. '58*
Chemical sales	$6,000 million ('58)	$10,000 million	$23,427 million
Chemical exports	$1,400 million ('58)	$2,000 million	$1,400 million
Chemical employment	525,000 ('58)	950,000	838,800
Population	90 million ('59)	166 million	171 million
Gross national product	$90 billion* ('57)	$145 billion* ('57)	$440 billion

*CW estimate based on OEEC data.

Italy, Belgium, Luxemburg and the Netherlands—most likely will act to preserve their markets in LFTA by integrating into the larger group rather than stand by and watch those nations drift into a solid, impenetrable seven-nation bloc.

Outside Attitudes: Attitudes of EEC countries are of particular significance to LFTA, since it looks for economic union with EEC.

Italy favors a large free-trade area based on OEEC, has actually proposed a customs union between EEC and other OEEC members. The country considers its chemical industry in good shape, capable of competing in the international marketplace under terms of a large free-trade area.

In Germany, opinion is divided. Economics Minister Ludwig Erhard heads a faction that prefers a large free-trade area. But Chancellor Konrad Adenauer and his followers would do nothing to undercut French President De Gaulle's stand against an expanded trade group.

Germany's divided stand is particularly disturbing to supporters of a large free-trade area, since they are counting on Germany to convince France that a large federation is best for Europe. Some are going so far as to predict that the new bloc, by diverting LFTA trade from Germany—as the main trading partner of most LFTA countries—will bring about a united stand by Germany, result in pressure on France for integration of LFTA and EEC.

Several German chemical industry spokesmen expressed fear that LFTA would be damaging to exports. German '58 chemical exports to LFTA countries exceeded those to EEC nations by $46.2 million. Germany's $297.2 million in chemical exports to LFTA countries in '58 was 26.3% of its total chemical exports.

Retaliatory Move: The Netherlands government and industry consider LFTA as a British-led retaliation against EEC. Though they deplore the isolationist and protectionist trends that blocked creation of a large free-trade area, they also deplore the "unsound and unnatural" economic division of Europe resulting from the creation of the second free-trade area.

Dutch observers feel that LFTA will lead to new integration talks, that it will be short-lived, because there is no economic basis for it, except between Britain and Scandinavia. They see no effect on Dutch trade in the next few years. But they could eventually be hurt. Dutch chemical exports to LFTA in '58 were worth $63 million; imports from LFTA were valued at $53 million. Dutch '58 chemical exports to EEC totaled

Sometimes it's better to let Eastman make it

When you need a special organic in a quantity that strains your laboratory facilities or ties up your staff, try Eastman Organic Chemicals Department, *Distillation Products Industries,* Rochester 3, N. Y.

DPi

there are some 3700 Eastman Organic Chemicals for science and industry

DISTILLATION PRODUCTS INDUSTRIES
is a division of
EASTMAN KODAK COMPANY

Emersol® Oleic Acid ends odor problem caused by rancidity

Thousands of noses twitched—and each one signaled the loss of a repeat sale for a major stencil producer.

The problem, several years ago, was simply oleic acid rancidity. The firm tried another oleic acid.
And another.
Finally, Emersol 233 LL Elaine.
End of problem.

So they switched to buying Emersol 233 exclusively. And, their subsequent checks on a host of competitive oleic acids have borne out their earlier judgment —Emersol 233, with a polyunsaturate content of less than 5%, has far greater resistance to rancidity than any other oleic on the market.

The other superior qualities of Emersol 233 were incidental to this company. But if your particular oleic acid problems involve color, color stability, or purity, you too are very likely to find the answer in the across-the-board top quality specifications of Emersol 233 LL Elaine. And it costs not a penny more than competitive grades. Write Dept I-8a for an evaluation sample or a 20-page comprehensive booklet on oleic acids.

Emery

Fatty Acid Sales Department
Emery Industries, Inc., Carew Tower, Cincinnati 2, Ohio
Vopcolene Div., Los Angeles—Emery Industries (Canada), London, Ontario
Export Department, Cincinnati

news briefs...

ON THE CREATIVE USE OF M&C PROCESS MATERIALS

Belden extrudes ASP-filled rubber insulation around the wire at this end of the continuous vulcanizer.

High-speed Coating Machine boosts Research Center's capabilities in Edgar Paper Clays

Photo shows high-speed paper coater just installed in M & C's Research Center at Menlo Park. Top speed is 2,000 fpm. Basically a roll coater, the new coating machine is sufficiently flexible to duplicate most coating methods. It is equipped with a trailing blade and may be adapted to duplicate reverse roll, gravure, and air knife coating. Its infra-red driers are augmented by a steam-heated Yankee drier.

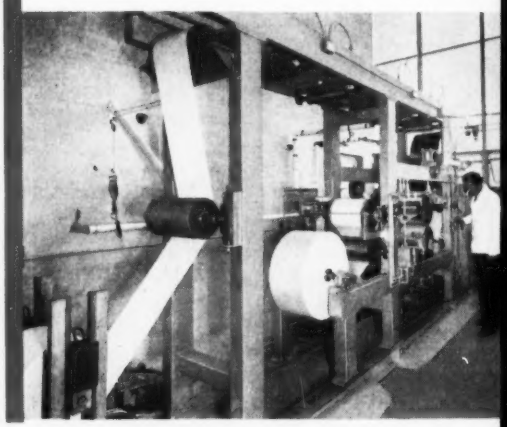
Installed for development and evaluation work with M & C's *Edgar Paper Clays*, the coating machine is a major addition to one of industry's most completely equipped labs for work in coating clays . . . developing and evaluating products to meet the demands for ever-higher quality in paper-coating clays. Keep posted on Edgar Paper Clays . . . check the coupon.

*Rubber Products

fast-curing, low-cost with high-loading ASP® fillers

However they're formed—extruded, molded, calendered, dipped, foamed—rubber products benefit from M & C's ASP fillers. Processors like most the fast cures and high loadings—*plus* the higher modulus and tensile, and easier processing. Belden Manufacturing Company likes all of these factors too . . . puts the ASP's in its rubber-insulated wire (see photo).

The ASP's are water-washed, water-fractionated from kaolin to give them that uniformity, freedom from grit, and bright color which make them such top performers. They'll better your products and cut costs, too . . . this is a *starred* item . . . use the coupon.



Minerals & Chemicals Corporation

7346 Essex Turnpike, Menlo Park, New Jersey

Leaders in creative use of non-metallic minerals

Export Department: Room 150, Garden State Parkway, Menlo Park, N.J. (Cable Address: "MICOR")

*Paint Manufacturers rely on ASP aluminum silicate pigments' quality, economy

M & C's ASP aluminum silicate extender pigments pass the *Chemist's* scrutiny for uniform purity, color, and particle size . . . satisfy *Production's* requirement for easy dispersibility and dependable supply . . . meet *Purchasing's* strict economy. ASP's are water-washed to virtual chemical-inertness—make paint products of outstanding stability and weatherability.

The Glidden Company finds ASP 400 meeting its rigid requirements . . . puts it in latex emulsion paints. Investigate the ASP's for *your* paint products . . . this is a *starred* item . . . use the coupon.

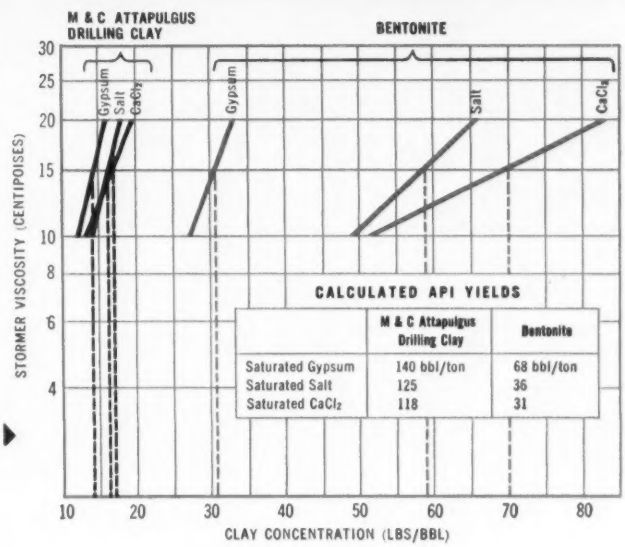
Glidden technician runs a Stormer viscosity . . . one of the control measurements for checking, maintaining quality performance.

Drilling Mud costs shaved by high-yield, stable Attapulgus Drilling Clay

Cost-cutting potential of M & C's *improved* Attapulgus Drilling Clay in muds is shown by API Yield comparisons with Bentonite in chart.

Proved: considerably less Attapulgus Drilling Clay than Bentonite is required for gyp, salt, calcium chloride muds.

Remarkable stability with contaminants such as salt and anhydrite is also characteristic of Attapulgus Drilling Clay. Attapulgus Drilling Clay in fresh water, gyp, salt, oil emulsion, and completion muds is discussed in new bulletin TI-552 . . . check the coupon.



CALCULATED API YIELDS

	M & C Attapulgus Drilling Clay	Bentonite
Saturated Gypsum	140 bbl/ton	68 bbl/ton
Saturated Salt	125	36
Saturated $CaCl_2$	118	31

API Yield Curves of M & C Attapulgus Drilling Clay and Bentonite in Saturated Solutions of Gypsum, Salt, and $CaCl_2$

Use this quick two-check coupon

- ✓ your product interest . . .
- ✓ what you need to get tests started . . .

we'll fill your requests immediately.

For more data, see your 1959 Chemical Materials Catalog, Pages 192-196

of America

MINERALS & CHEMICALS CORPORATION OF AMERICA
7346 Essex Turnpike, Menlo Park, N. J.

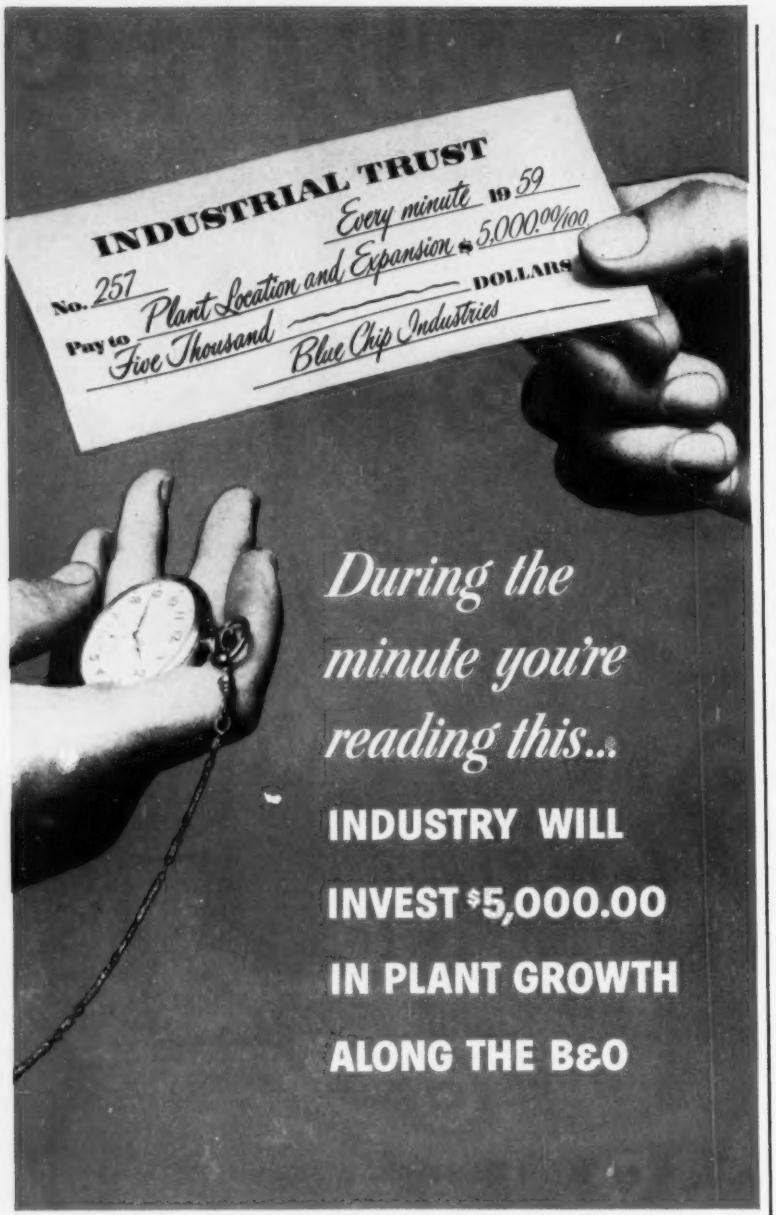
I'm interested in:

☐ *Rubber Products Fillers; ☐ Edgar Paper Clays;
☐ *Paint Extender Pigments; ☐ Attapulgus Drilling Clay.

Please send, without obligation:

☐ data; ☐ samples; ☐ prices; ☐ technical representative

name_____
title_____
company_____
address_____
city_____ zone_____ state_____



• Industry has proved its confidence in B&O's Land of Big Opportunity since there, *more people* produce and consume *more commodities* of all kinds than anywhere else. *More skills* are concentrated . . . *more dollars* invested and *better transportation* is available. Look and locate along the B&O!

Plan with a B&O man!

PHONE OR WRITE:
T. G. GORDON, Industrial Agent
BALTIMORE 1 LExington 9-0400

G. E. FERENCE, Ind. Development Agt.
NEW YORK 4 Digby 4-1600

A. C. TODD, Industrial Agent
CINCINNATI 2 DUnbar 1-2900

FIELDING H. LEWIS, Industrial Agent
PITTSBURGH 22 COurt 1-6220

W. E. OLIVER, Industrial Agent
CHICAGO 7 WAbash 2-2211

B&O BALTIMORE & OHIO RAILROAD

Constantly *doing things*—better!

$90 million; imports, $123 million.

France Reluctant: France remains the main obstacle to integration of EEC and LFTA. France wants to wait and see how EEC works before talking about a larger area.

The French chemical industry has taken a less-rigid stand than the government against a larger market area, because of the business it does with LFTA countries. In '58, France exported $66 million worth of chemicals to LFTA, $70 million to EEC. In the same year, the country imported $50 million in chemicals from LFTA, $80 million from EEC. Britain was France's best chemical customer in '58, followed by Switzerland and Benelux; Germany was its best chemical supplier, followed by Britain.

Britain Leads: Many Britishers feel that the new bloc will be just the "ploy" to create a larger free-trade area. They're counting on fear by EEC countries, particularly Germany, of losing markets in the Outer Seven. Secondly, they hope LFTA will prove to the French that a larger free-trade area will work.

LFTA is a serious gamble for Britain. Its industry will not gain enough from the new alliance to offset the loss of EEC trade. Britain sends the other six members of LFTA only 9% of its exports, compared with 14% to EEC countries.

The chemical industry will lose a great deal more than it gains on tariff reductions among LFTA, since it is the most heavily protected of British industries. The chemical industry, however, supports a larger FTA, is ready to exchange protection for a larger market. In '58, Britain exported $68.2 million worth of chemicals to LFTA, $117.6 million to EEC.

British management's attitude toward investments on the Continent is significant. The consensus is "wait and see." If a large free-trade area is set up, production investments in EEC will have been wasted. The same reasoning, of course, would apply to investments by foreigners in LFTA countries. Observers feel that LFTA will have little effect on U.S. trade with European countries. External tariffs of the Outer Seven will be unaffected by the alliance, and freer movement within the area will not impair competition of U.S. products marketed within it.

LEGAL

Trespassing Fluoride: In a significant decision that makes trespassing a factor to be reckoned with in air-pollution cases, the Oregon state supreme court has affirmed a lower-court judgment of $91,500 against Reynolds Metals Co.

The judgment against the Richmond, Va., concern was in favor of an Oregon dairy farmer who had charged that Reynolds trespassed on his property when it allowed fluoride compound effluents from its Troutdale, Ore., aluminum reduction plant to settle on his land.

The farmer, Paul Martin, sought $450,000 general damages and $30,000 punitive damages, claimed the fluoride compounds made his land unfit for raising livestock. Punitive claims were rejected by the trial court and the supreme court agreed.

Crux of the decision was the court's ruling that any intrusion that invades the possessor's protective interest, whether such an intrusion is by visible or invisible pieces of matter, constitutes a trespass.

•

Florida Pollution Drive: Florida's antipollution drive — already responsible for considerable litigation involving six Polk County phosphate producers—has resulted in new charges by the state board of health against a Jacksonville oil processor.

State Sanitary Engineer David Lee has filed a complaint against Allied Petroleum Corp., charging the firm with being a public nuisance. He seeks an injunction blocking alleged pollution of waterways near the company's plant.

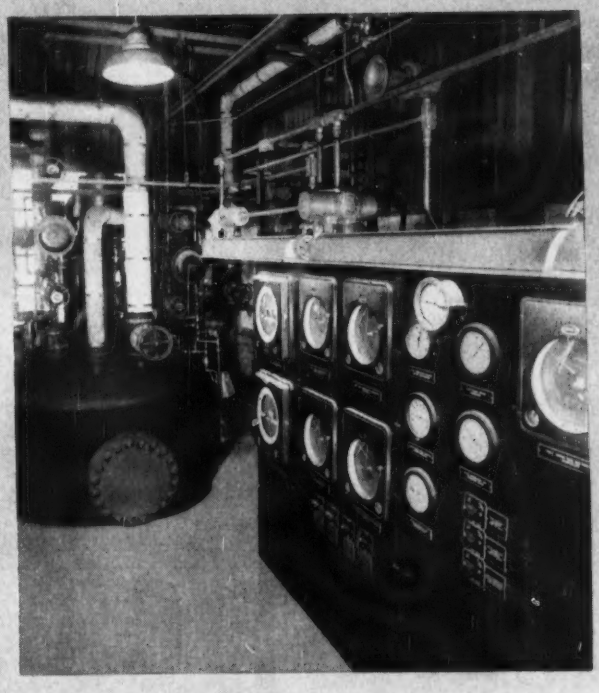
LABOR

Phosphate Ultimatum: The militant position taken by Virginia-Carolina Chemical Corp. in combating a 10-week strike by International Chemical Workers Union appears to have paid off. ICWU Local 36 employees voted to go back to work, and continue negotiations, after the company issued an ultimatum saying it would hire new workers and fire old ones if they failed to appear for work after Aug. 3.

The company sent out self-addressed postcards for workers to mark whether or not they intended to

Fatty Acid Hydrogenation

at pressures up to 600 psig
— — *without leakage!*



Safety is the prime consideration in I★P★E designed hydrogenation plants. At the same time, economy results, for exceptionally low iodine values are obtained with low catalyst consumption.

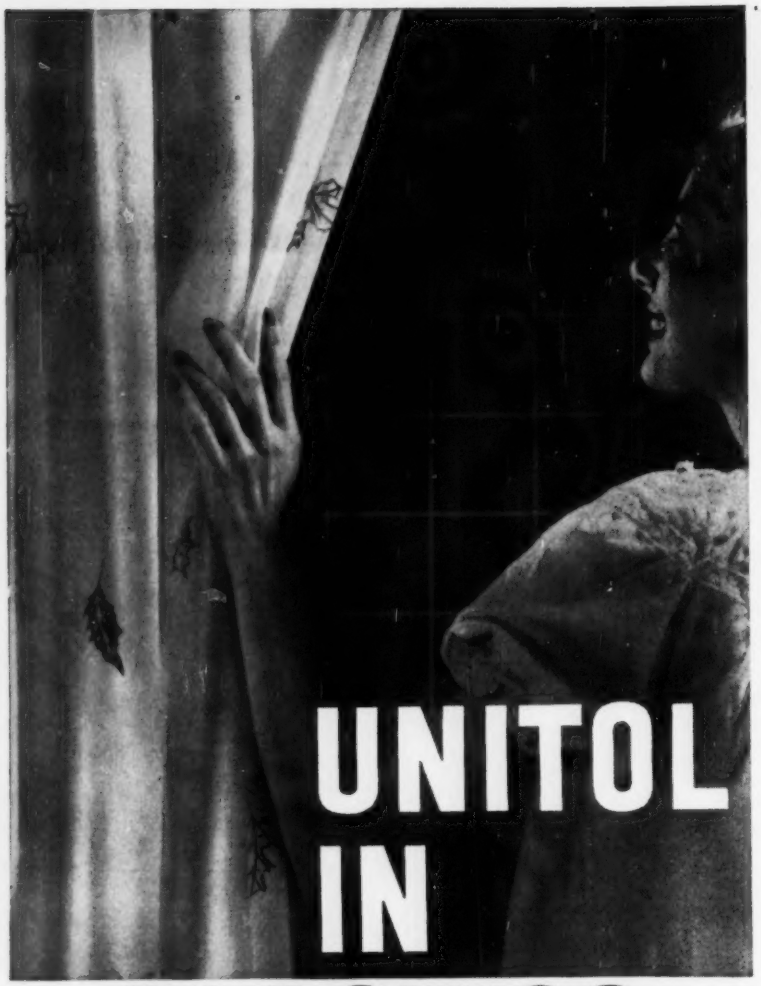
The modified high-pressure process developed by I★P★E is dependent on four key factors: proper agitation, rapid and controlled heat transfer, complete clean-up of stock, and optimum use of catalyst. Results, in terms of specific iodine values for given materials, can be guaranteed based on simple laboratory tests.

For further details on hydrogenation processes and plants, contact I★P★E's Process Plants Division, Dept. N.

I·P·E PRECISION ENGINEERED DESIGN ®

INDUSTRIAL PROCESS ENGINEERS

12 LISTER AVENUE • NEWARK 5, N. J.



PLASTICS

helps
provide
better living

Vinyl plasticizers made from *UNITOL ACD* tall oil fatty acids are low in cost and exhibit many superior chemical and physical properties. They help facilitate processing and impart excellent color retention and flexibility to the finished product.

Perhaps *UNITOL* can help cut your costs. Write today for further information, samples and prices.

unitol
TALL OIL union camp PRODUCTS

Chemical Products Division
UNION BAG-CAMP PAPER
CORPORATION
233 Broadway, New York 7, N. Y.

ADMINISTRATION

return, or whether they were employed elsewhere and did not want their jobs back.

•

Aluminum Extension: Reynolds Metals Co. and the Aluminum Workers Union have agreed to extend their existing labor agreements for an indefinite period of time, subject to termination by either party on 10 days' advance notice. About 5,500 employees in 12 plants in four states are affected.

The union will probably hold up its negotiation request, pending pattern-making settlements between the steel industry and The United Steel Workers—a union that has organized several aluminum plants.

KEY CHANGES

Charles T. Harding to director, **William P. Boyer** to vice-president, **Wallace T. McKeel** to treasurer, Virginia-Carolina Chemical Corp. (Richmond, Va.).

F. Dean Hildebrandt to executive vice-president, McKesson & Robbins (New York).

Kirby Peake to administrative vice-president, Carter Products (New York).

Everett Smith to executive vice-president, **Charles A. Poderzay** to vice-president in charge of sales for parent and subsidiaries, Standard Chlorine Chemical Co. (South Kearny, N.J.).

Chester M. Brown to president and chief operating officer; **James G. Fox, Jr.**, to president, National Aniline Division; **Irb H. Fooshee** to vice-president—manufacturing; **I. H. Munro** to vice-president — marketing; Allied Chemical Corp.

Kenneth A. Spencer to board chairman and chief executive officer, **C. Y. Thomas** to board vice-chairman, **John C. Denton** to president, **John P. Miller** to senior vice-president—finance, **Joe E. Culpepper** to senior vice-president—marketing, **Byron M. Kern** to vice-president—agricultural chemicals, Spencer Chemical Co. (Kansas City, Mo.).

William H. Combs to vice-president, Great Lakes Carbon Corp. (New York).

Which of these 3 products and services can you use from BECCO?

What's new in Metal Treatments and Etching?

Quite a few things. For example, there's the use of Becco Ammonium Persulfate in etching printed circuits. Seems the material works a lot better – at less cost – and with none of the hazards of the ferric chloride solutions conventionally used.

Then, there's the problem of pickling copper and brass. Lots of pickling agents will do this – only trouble is, you've got to paint or plate or do whatever you're going to do with the metal rather quickly. Or else. Or else it will tarnish or oxidize and you're in the pickle all over again.

Not so with Ammonium Persulfate. Cleans fine. Puts a mild etch on the surface, too, for better paint or plating bonding. More important, perhaps, is the fact that the metal resists retarnishing for up to two weeks. Ideas?

We hope so. What's more, we've got several booklets to help spur you on. They're free–use the coupon below to order.

No. 39 and 51–Surface Treatment of Metals with Peroxygen Compounds.

No. 86 – Improving Properties of Copper and Brass Surfaces.

No. 97 – Paddle Etching of Printed Circuits with Ammonium Persulfate.

No. 99 – Tank Immersion Etching of Printed Circuits with Ammonium Persulfate.

No. 102–Etching of Printed Circuits with Mercury Activated Persulfate.

BECCO fmc

BECCO CHEMICAL DIVISION, FMC
Station B, Buffalo, New York

Dept. CW-E

Gentlemen:
Please send me the following free bulletins:

☐ 39 and 51 ☐ 86
☐ 97 ☐ 102 ☐ 99

NAME_____

FIRM_____

ADDRESS_____

CITY_____

ZONE____ STATE_____

What's a PEROXYGEN?

Fact is, "peroxygen" is a word that Becco uses to indicate that we can tie oxygen onto just about anything.

How come? Well, years of experience in producing Hydrogen Peroxide has produced an affinity between Becco and oxygen — an affinity we have capitalized on to give you compounds that will provide a ready source of oxygen — wherever, however and whenever you need it.

We have a good number of such compounds on the shelves. Quite a few others are in development. Still others are merely in our minds, but we can begin drawing them out if you're interested.

We hope you are interested. But we'll never know—unless you fill in the coupon below and mail it to us. Why not?

BECCO fmc

BECCO CHEMICAL DIVISION, FMC
Station B, Buffalo, New York

Dept. CW-D

Gentlemen:
Send me more information about Becco Peroxygen Chemicals.

NAME_____

FIRM_____

ADDRESS_____

CITY_____

ZONE____ STATE_____

Problems in handling Hydrogen Peroxide

Becco's Four-Fold Engineering Service Program—offered free —includes:

1. Comprehensive survey of your facilities.
2. Specific proposal with recommendation of proved equipment and where it is obtainable.
3. Installation supervision by Becco.
4. Periodic inspection and permanent service.

Can you use this free Becco help, based on more years of experience with bulk handling of H_2O_2 than any other manufacturer? Use the coupon to let us know.

BECCO fmc

BECCO CHEMICAL DIVISION, FMC
Station B, Buffalo, New York

Dept. CW-B

Gentlemen:
Please tell me more about your Four-Fold Engineering Service.

NAME_____

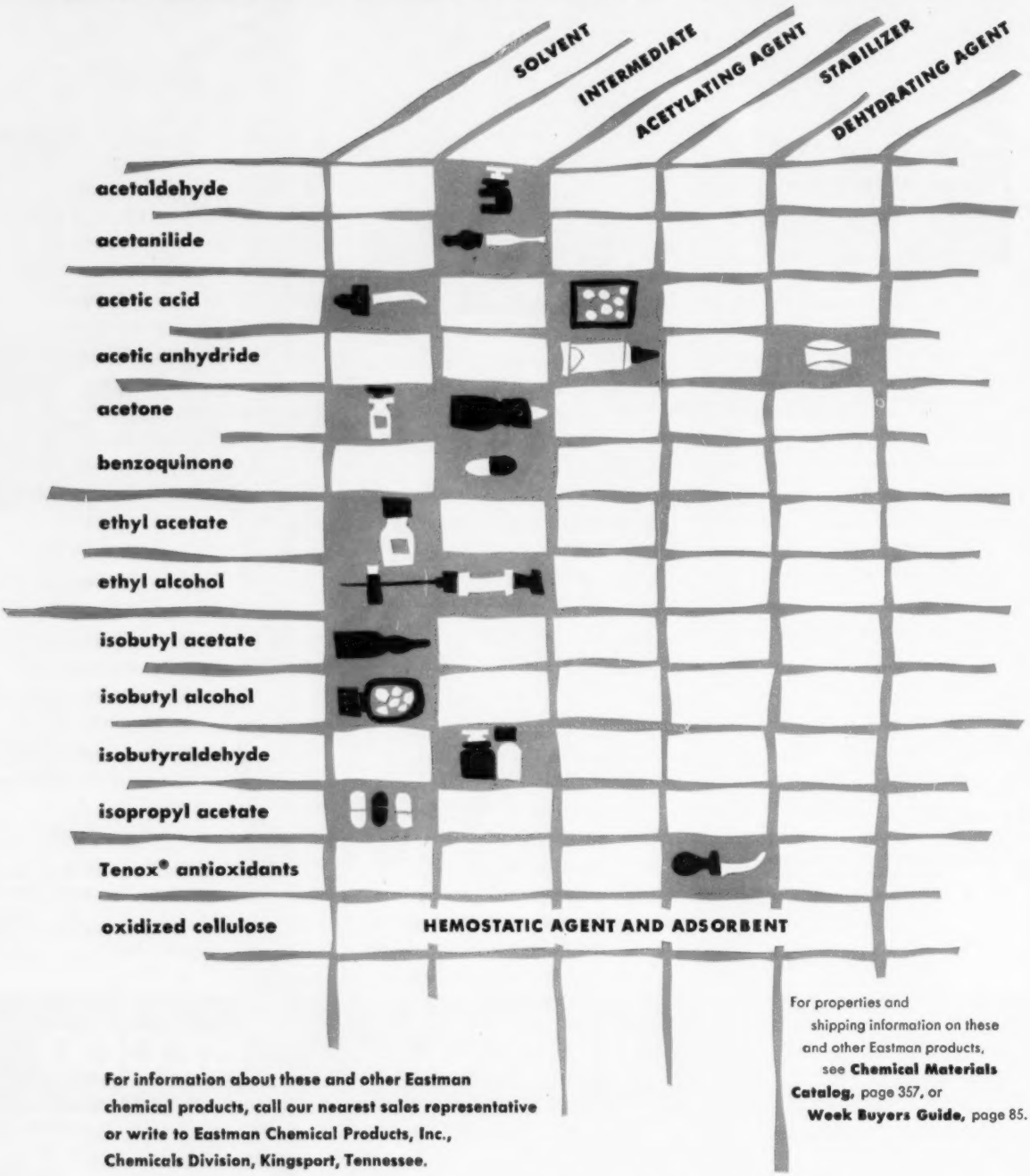
FIRM_____

ADDRESS_____

CITY_____

ZONE____ STATE_____

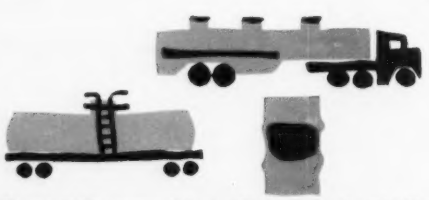
Eastman raw materials for the Pharmaceutical industry



For properties and shipping information on these and other Eastman products, see **Chemical Materials Catalog,** page 357, or **Week Buyers Guide,** page 85.

For information about these and other Eastman chemical products, call our nearest sales representative or write to Eastman Chemical Products, Inc., Chemicals Division, Kingsport, Tennessee.

Eastman
CHEMICAL PRODUCTS, INC.
KINGSPORT, TENNESSEE
subsidiary of EASTMAN KODAK COMPANY



SALES OFFICES: Eastman Chemical Products, Inc., Kingsport, Tennessee; Atlanta; Chicago; Cincinnati; Cleveland; Framingham, Massachusetts; Greensboro, N. C.; Houston; New York City; St. Louis. **West Coast: Wilson Meyer Co.,** San Francisco; Los Angeles; Portland; Salt Lake City; Seattle.

Talks Give Cryogenic Safety New Airing

More than 200 representatives of chemical plants and oil refineries—after two days as conference guests of Air Products, Inc., in Allentown, Pa.—are this week ready to attack safety problems in low-temperature processes with new vigor. The stimulus: the conference, pictured here, showed a changing attitude toward the scope of safety in plants.

Air Products began planning the conference on cryogenic system safety last May for some of its own personnel. Outsiders heard about it, asked to attend. And the company wound up extending invitations to more than 200 interested outsiders—many of whom are purchasers of Air Products oxygen plants, although some conferees operate plants of competitors.

Leonard Pool, Air Products president, says that expanding the conference to include outsiders was an important forward step in an already intensive safety program. Unlike that of most chemical process industries firms, Air Products' safety program is aimed at outsiders as well as its own employees. Naturally, an accident in its own plants, or in plants it operates for other companies, is a direct responsibility of Air Products. But an accident in a plant that is operated by one of its customers is a moral, rather than legal, responsibility.

It's not entirely altruism. As it is with any company with process plants for sale or license, Air Products' reputation and sales could be jeopardized by an accident in any plant it has been concerned with.

Free Exchange: There are generally few trade secrets in safety or waste disposal in the chemical process industries. But free exchange of process safety information on low-temperature oxygen and hydrogen units has been under a double handicap. There's the common one—few people get enthusiastic about safety, particularly if the safety instruction is buried in a plant operation manual. And, among designers of low-temperature plants, defensive attitudes concerning proprietary processes have often interfered with objective swapping of safety information. Another factor

Air Products' Safety Director Himmelberger (left) replies to questions at conference on cryogenic system plant safety.

Research department's VanDyke (center) discusses typical plant accidents resulting from equipment and operator failures.

Research director McKinley (center) explains how to interpret data to minimize hazards of low-temperature operations.

CW PHOTOS—MARIO PROVA

PRESSED FOR TIME AND CRAMPED FOR SPACE?

Let GPU *Site-Service* solve your problem with a wide choice of sites with room for growth!

In GPU territory—heart of the world's richest market—there's plenty of space and every other factor you need for growth. Available, too, are choice locations, many with modern buildings. To be ready faster for expansion by saving site-seeking time and trouble, phone, wire or write today. Your inquiry will receive prompt, *confidential* attention.

GPU Site-Service . . . the one central source of plant location information for nearly half of Pennsylvania and New Jersey.

GPU ELECTRIC POWER COMPANIES

Metropolitan Edison Co.
Pennsylvania Electric Co.
New Jersey Power & Light Co.
Jersey Central Power & Light Co.

GENERAL PUBLIC UTILITIES CORPORATION

Att: Wm. J. Jamieson, Area Development Director, Dept. CW-5 • 67 Broad St. New York 4, N. Y. • WHitehall 3-5600

Conferees watch fire and explosion

that, until recently, held up the information exchange: security classification of data on liquid hydrogen.

With far more widespread use of individual low-temperature units in a variety of industrial processes, the question of safety has become more critical. Best way to reach a large number of people—and really impress them—would be to hold a centralized meeting, the firm decided. Reason: officials, such as Research & Development Director Clyde McKinley and Safety Director Franklin Himmelberger, would have a chance to address everyone at once.

Small Margin: At the conference, Bingham VanDyke, contract manager of the company's research and development department, explained concern about safety this way: concentration of oxygen sometimes makes air-flammable materials explosive, turns ordinarily nonflammable materials into flammable ones.

VanDyke and other conference speakers illustrated their talks with numerous examples from Air Products' files, but no plant identifications were made. "We weren't out to sell our own plants or hit competitors'; we were out to sell safety," says VanDyke.

No small part of selling resulted from the free exchange of questions and answers by guests at general conference sessions and in small group seminars that covered 11 specialized topics. Among the subjects: analytical and sampling techniques; contamination sources, limits and remedial procedures; inspection and cleaning procedures; machinery; materials of construction.

demonstrations from circus tent.

"I answered more questions than I asked," said one guest, a chemical plant supervisor.

When it was apparent that guests might make major contributions, they spoke informally for five or 10 minutes. Giuseppe Nardin of Montecatini discussed coke-oven gas explosions. And Arnold Weintraub of AEC's Health and Safety Laboratory, John Mark of the Lawrence Radiation Laboratory (Berkeley, Calif.) and Leonard Baker of the Brookhaven National Laboratories (Upton, N.Y.) discussed hydrogen bubble chamber experiments.

The Payoff: VanDyke pointed out how emphasis on safety can pay off. Insurance rates for oxygen plants at many petroleum refineries are often 20¢ per $100 of insured plant, compared with about 50¢ per $100 of insured plant for the refinery.

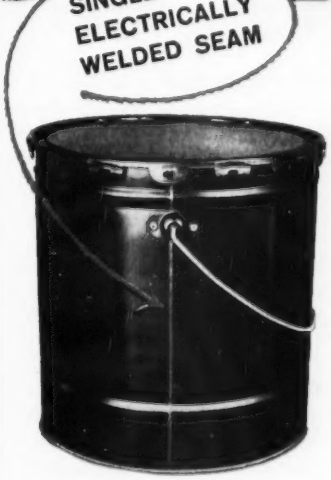
"These figures show only the order of magnitude," he said. "Rates for both refineries and oxygen plants might be lower or higher, depending on individual plant conditions. And, in some cases, oxygen plants carry rates as low as 6¢ per $100 of insured plant. But this would not be for a plant located at a refinery where hydrocarbons in the atmosphere cause our most serious problems."

Pool said that Air Products would hold similar conferences in the future. "But," he added, "I can't say when. We will have to wait until we have enough information to make it worthwhile." Judging from current reaction, the Allentown conference served as a profitable pacesetter for future safety-selling conferences.

NEW FROM CONTINENTAL

Electrically welded, leakproof **flaring pails**

nest to save storage and shipping costs



Single seam construction

gives leakproof protection for hard-to-hold products

These pails offer greater strength and protection for liquid roofing cements, paint and petroleum products, dry or powdered materials. Ask your Continental man for details.

CONTINENTAL CAN COMPANY

Eastern Division: 100 E. 42nd Street, New York 17
Central Division: 135 So. La Salle St., Chicago 3
Pacific Division: Russ Building, San Francisco 4
Canadian Division: 790 Bay St., Toronto, Ont.
Cuban Office: Apartado #1709, Havana

Metasap Chemicals... vital ingredients for vital industries

A new and complete line of vinyl stabilizers

PROTECT YOUR VINYL PRODUCTS AGAINST HEAT AND LIGHT

The improved line of Metasap vinyl stabilizers is your dependable and economical answer to the deterioration found in vinyl products when they are exposed to heat and light.

And, as always, Metasap chemists will welcome the opportunity to make recommendations based on your specific needs. We invite your inquiry.

Write today for your copy of the new Metasap Vinyl Stabilizer file. It contains complete information about the types, properties and suggested uses of all products in the line.

METASAP CHEMICAL COMPANY
60 Park Place • Newark, N.J.
A subsidiary of NOPCO
Plants: Harrison, N.J. • Richmond, Calif. Cedartown, Ga. • London, Canada

PRODUCTION EQUIPMENT

Gas Engine: A new, two-cycle, V-type gas engine said to combine reliability and space economy is offered by Clark Bros. Co. (Olean, N.Y.). The new model TPV comes in three horsepower ratings: 4,000, 4,800 and 6,400 bhp. It's said to produce up to 77% more horsepower per square foot of floor space than comparable engines, and to require little maintenance as a result of long component life, fewer parts than comparable four-cycle engines.

•

Compressors: Allis-Chalmers Mfg. Co. (Milwaukee) has standardized its line of scroll-case, single-stage compressors. The redesigned line consists of three styles: B, C and D. The B-style compressor is designed for low-pressure, low-volume service; C for moderate-thrust loadings; D for higher-pressure ratios, greater volume and wider flexibility than either of the other two styles.

Le Roi Division of Westinghouse Air Brake Co. (Milwaukee) also has an addition to its compressor line. It's called the Le Roi 75RG1, is a sliding-vane-type, single-stage rotary air compressor, rated at 75 cfm. of free air compressed to 100 psi.

The company describes it as the smallest of the five members of the line. An aluminum "flip-top" housing helps keep weight to a minimum, offers servicing ease.

•

Liquid-Level Control: OPW-Jordan (6013 Wiehe Rd., Cincinnati 13) is offering a new line of liquid-level controllers that use plant air to pilot the main diaphragm control valve. Sizes: ¼-6 in.

•

Heated Rubber Pipe: Two Trenton, N.J., firms have developed an electrically heated synthetic rubber pipe, fabricated of buna-N rubber by Luzerne Rubber Co. The pipe has imbedded in it a silicone rubber heating tape developed by Sunelec, Inc. The pipe will withstand temperatures up to 248 F, says Luzerne, can be lined with any of a variety of resistant materials for special applications.

•

Vacuum Furnace: F. J. Stokes Corp. (5500 Tabor Rd., Philadelphia 20) is out with a new furnace for vacuum heat treating of alloys and heat-sensitive materials. Containing specially designed elements made by Trent, Inc., the furnace will hold temperatures up to 1850 F to within ±1% at a vacuum of 0.01 micron. Size of the hot zone: 12 in. in length, 10 in. in diameter.

•

Viscometer: Norcross Corp. (Newton 58, Mass.) has a new pipeline viscometer with two-stage temperature control. First stage is normal cooling of the side-stream being measured; second is controlled electrical heating. Viscosity is measured by a falling piston, and signals are electrically transmitted for recording or controlling.

•

Tube Fittings: A new line of fittings for glass or metal tubing is offered by Harold Kruger Instruments (San Gabriel, Calif.). The fittings, designed for use with tubing up to 16 mm. in diameter, are made of Teflon, have knurled-nut fastenings that are tightened to hold the inserted tubing. Various fittings available include tees, elbows, reducers, pipe-to-tube adaptors, panel fittings.

•

Material Intake Valves: U.S. Hoffman Machinery Corp. (103 Fourth Ave., New York 3) has a new line of material intake valves for use on high-vacuum pneumatic systems for removal or transport of dry, free-flowing materials. The new valves are suitable for use on pipelines ranging in size from 2 to 6 in., have standard 8-in. flanges for installation on bins, hoppers or dust collectors.

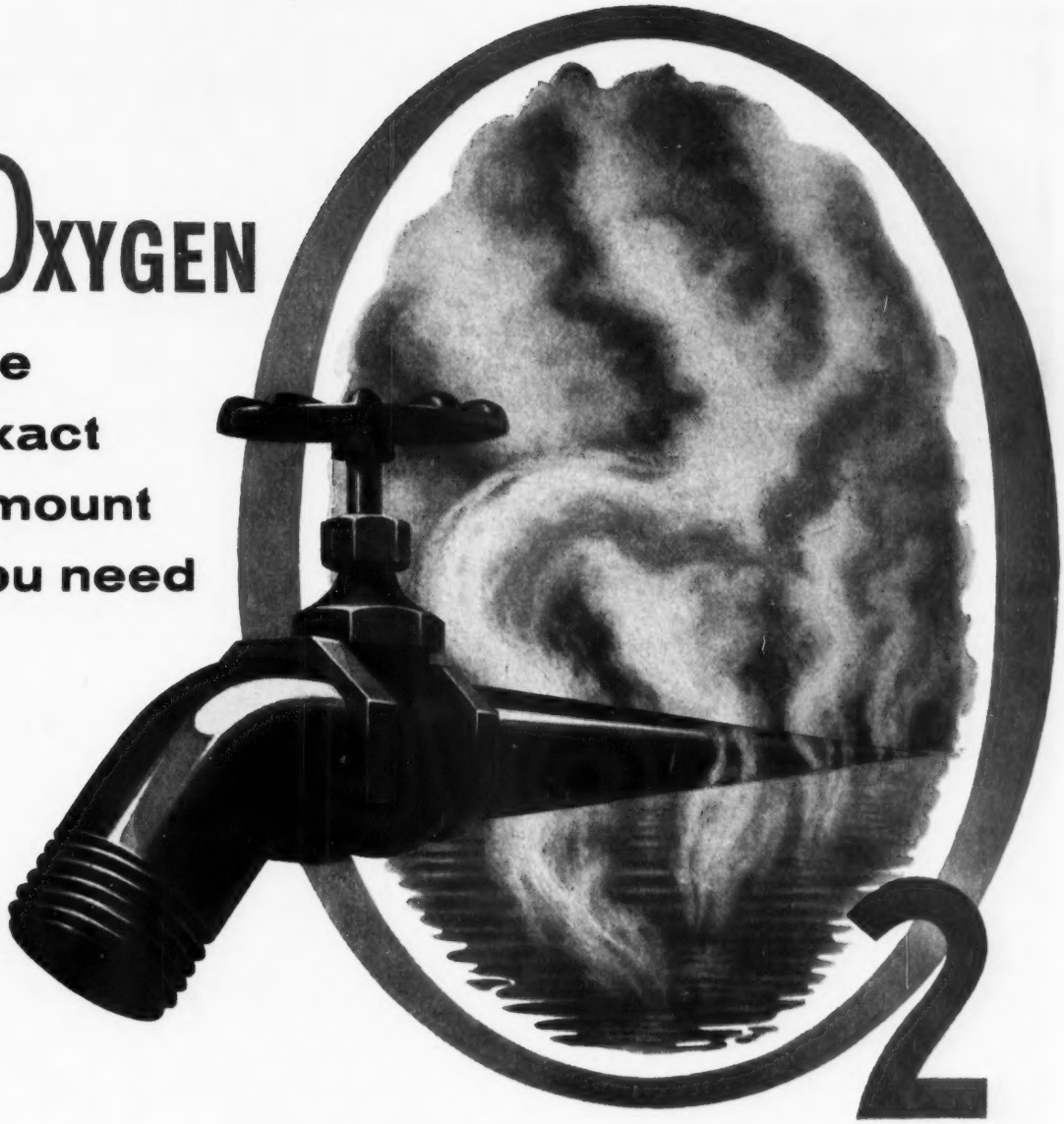
•

Motors: Sterling Electric Motors, Inc. (5401 Telegraph Rd., Los Angeles 22), is offering a new mechanical variable-speed drive with separate motor construction. Proper selection of V-belt and timing belt allows output speeds from 1.2 to 4,660 rpm. at 0.5-30 hp. The new unit is also available in dripproof, explosionproof and totally enclosed designs.

And Reliance Electric & Engineering Co. (24701 Euclid Ave., Cleveland 17) has a new line of integral horsepower alternating-current motors. The new line called Duty Master, ranges in size from 1 to 250 hp., is now available in a variety of enclosures, including protected (open), weatherproof, totally enclosed, corrosionproof and explosionproof.

OXYGEN

the exact amount you need



You get it instantly—from LINDE

You have no worries whatever about an ample, dependable supply of oxygen for your process when you buy oxygen from LINDE. Full responsibility for production, transportation, and storage at your plant is assumed by LINDE.

Tonnage oxygen. Large amounts of liquid or gaseous oxygen can be supplied from a full-scale oxygen production unit—built and maintained by LINDE—directly to your plant. You pay only for the oxygen you use, at a price guaranteed by LINDE, with no capital investment on your part.

For varying needs. A DRIOX oxygen storage unit provides a continuous flow of liquid oxygen, or converts it automatically to gas. Constant pressure is maintained, even while the unit is being replenished. Or you can get LINDE oxygen in a single flask, a cylinder, or banks of cylinders.

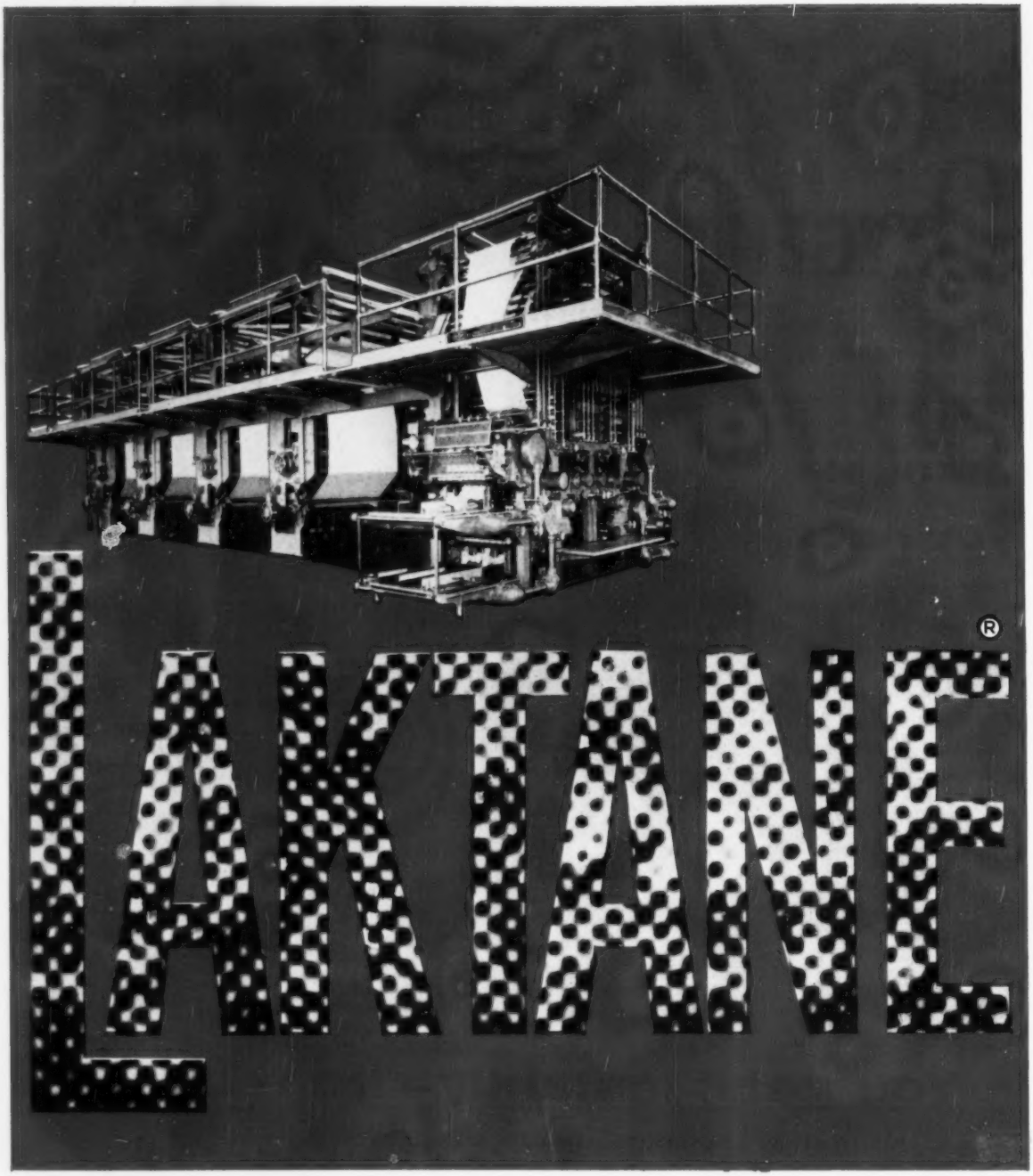
Take advantage of LINDE's 50 years of development and service in the industrial gas field! Write, phone, or wire Dept. CW-83, LINDE COMPANY, Division of Union Carbide Corporation, 30 East 42nd Street, New York 17, N. Y. Offices in other principal cities. *In Canada:* Linde Company, Division of Union Carbide Canada Limited.

When you need Oxygen—call LINDE!

Linde TRADE-MARK

UNION CARBIDE

The terms "Linde," "Driox," and "Union Carbide" are registered trade-marks of Union Carbide Corporation.



SUPERIOR SOLVENT FOR ROTOGRAVURE INK

The high solvency of Laktane fulfills a crucial requirement for rotogravure ink—proper viscosity reduction. In fact, it provides greater solvency for ink vehicles than any other aliphatic diluent. Laktane is also perfect for fast drying lacquers because it offers the highest aromatic and naphthene content of any commercial aliphatic diluent. And Laktane has a remarkably clean odor . . . and is less expensive than many other solvents used in lacquer formulations!

For further information or technical assistance, write: Esso Standard Oil Company, Solvents Div., 15 West 51st St., N. Y. 19, N. Y.

OIL'S FIRST CENTURY
BORN IN FREEDOM
WORKING FOR PROGRESS

Esso

PETROLEUM SOLVENTS

In Industry after Industry..."ESSO RESEARCH works wonders with oil"

Technology
Newsletter

CHEMICAL WEEK
August 15, 1959

Naphthenes are getting a close look as possible jet fuels for the higher-speed jets of tomorrow, according to *Aviation Week*. The magazine reports this week that the Air Force has contracted for 100,000 gal. from Ashland Oil & Refining, the same amount from Esso. They'll be evaluated by Wright Air Development Center's Propulsion Laboratory.

Big assets for naphthenes are thermal stability, high density:

• Currently used JP fuels are stable up to 300-400 F, the operating temperatures encountered in planes flying at twice the speed of sound. But the Air Force is looking ahead to planes that will be going at three to five times the speed of sound. It will need fuels that are stable at 600-800 F.

• Density is important, says *Aviation Week*, because the new planes are strapped for space. It cites the F-104, which has no room for fuel tanks in its wings because they're so thin. Naphthenes will provide the same heat content as JP fuels on a weight basis (8,000 Btu./lb.). But they'll provide something like 135,000 Btu./gal., as opposed to 119,885 Btu./gal. for JP-4, 125,300 Btu./gal. for JP-6.

Ashland's fuel will be made by hydrogenating aromatics. Starting materials are believed to be a monocyclic compound (like benzene or toluene) and a dicyclic (like naphthalene). The finished fuel then would be a mixture of possibly cyclohexane and decahydronaphthalene. Ashland is getting $250,000 for the first 100,000 gal.

Esso's fuel is a virgin distillate, treated to remove unsaturated and aromatic compounds. Esso's getting $100,000 for 100,000 gal.

The market for such fuels could be big. The Air Force could take 100 million gal./year in five to 10 years. Commercial transports, if they go supersonic, could take 150 million gal./year.

•

Research on Dacron (Du Pont) polyester tire cord has paid off in a tire that gives more mileage and a better ride, Firestone Tire & Rubber Co. (Akron, O.) believes.

Dacron-cord tires do not get flat spots on standing, and are said to compare favorably in strength to tires made of other types of cord. But the firm won't give details of how the fiber's inherent deficiencies—lower flex resistance than viscose or nylon cord, and poor adhesion to rubber—have been overcome. Whether Firestone will market them depends on results of fleet testing. In view of Dacron's higher cost ($1.60/lb. vs. $1.20 for nylon and 66¢ for Tyrex rayon), first sales are likely to be in premium passenger tires.

Firestone has also been working with the similar fiber, Terylene (Imperial Chemical Industries, Ltd.) *(see p. 67).*

Technology
Newsletter

(Continued)

The roster of companies looking at offbeat chemical reactors (*CW, Feb. 8, '58, p. 83*) has another member—California Research Corp. (San Francisco). A new patent (2,898,199) assigned to the firm covers a free-floating piston reactor for chemical reactions requiring high temperatures for brief periods of time.

•

Copper oxide catalyst removes smog-forming components of auto exhaust, a two-year screening program at the University of California (Los Angeles) indicates. UCLA assistant research engineer Srinivasa Sourirajan tested a large number of catalysts at 600-1800 F in a simulated auto exhaust system, found copper oxide readily decomposes nitric oxide into nitrogen and oxygen, and oxidizes hydrocarbons to carbon dioxide and water.

•

Superhard aluminum—equal to heat-resistant high-alloy steel— is a new development of Alcoa Research Laboratories (Cleveland). One new aluminum welding alloy provides a Brinnell hardness of 250 when applied to commercial aluminum products in precision-welded zones. Comparable hardness of commercial aluminum pistons: 110. Hardness ratio jumps to 4:1 at 500 F. Initial applications are expected to be in the automotive field, where localized hardness and resistance to wear and heat are needed.

•

Monsanto will join Merck as a commercial producer of ultrapure silicon. A new plant—to use the Siemens-Westinghouse process for making 1,000-ohm-cm. silicon (*CW Technology Newsletter, May 9*)—will be erected in St. Charles County, Missouri. The company won't disclose cost or capacity figures, but says it will be in production before the end of '59, will reach design capacity in '60. Monsanto has piloted the process at St. Louis and Dayton, as well as in England.

Dow Corning licensed the same process at the same time as Monsanto, but has not revealed its plans. Du Pont, which licensed a route from International Telephone & Telegraph last year, reports that pilot studies are proceeding favorably at its Brevard, N.C., silicon plant.

Up to now, Merck had been the only firm to report commercial production of 1,000-ohm-cm. silicon, although Westinghouse is a captive producer of it. There are several producers of the material in the 100-ohm-cm. range.

•

Commercial shale-oil production is expected to begin between '60 and '65, according to a new report prepared for the Colorado Water Conservation Board by Cameron and Jones, Denver consulting engineers. Initial production (in western Colorado) would be 25,000 bbls./day, according to the report, but would reach 1.25 million bbls./day by '75. Most of the shale-oil production will be along the Colorado River, between Rifle and De Beque, which will supply the necessary 50-100 gal. of water/barrel of oil produced.

Service for PETRO-CHEMICALS from... ALLIS-CHALMERS

A local call

brings service to any branch plant

Your branch plants — no matter where they are located — are only a phone call away from Allis-Chalmers service.

To provide this guarantee of prompt service on mechanical and electrical equipment, A-C offers its petro-chemical customers a whole mapful of personnel and facilities. They include:

- **9 Regional Offices** — to serve as coordination centers from coast to coast.
- **79 Local Offices** — covering every industrial area in the country.
- **Field and Erection Personnel** — located strategically for 'round-the-clock' duty.
- **Certified Service Shops** — a vast network to provide minutes-away service.
- **Warehouse Stocks** — there's no waiting anywhere for replacement parts and components.

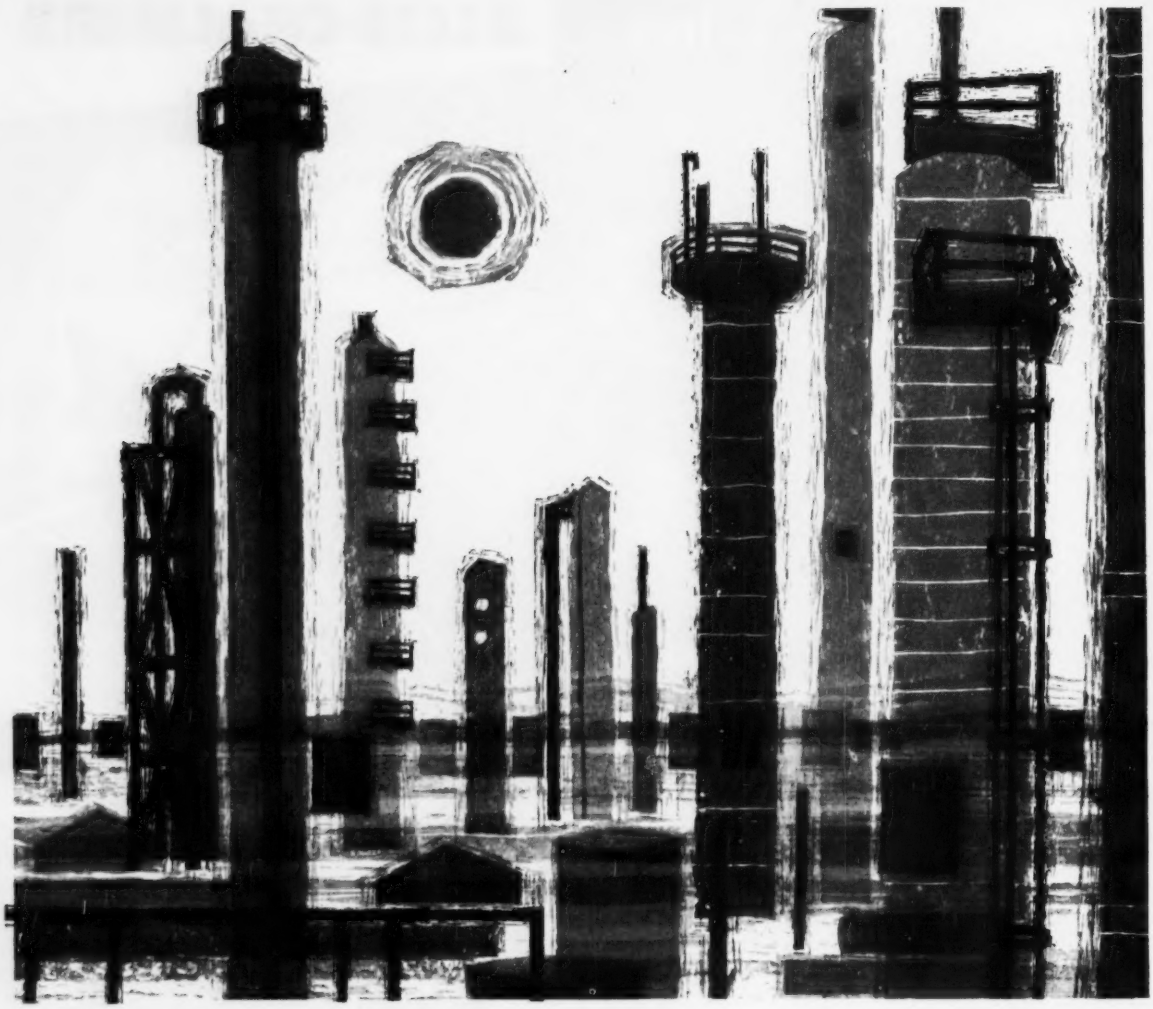
Matching this service is a tremendous scope of industry-designed equipment from one source. Ask your A-C representative about the last word in product designs, all proven by research and application, all built for outstanding quality control. Or write Allis-Chalmers, Milwaukee 1, Wisconsin.

Products for Petro-Chemicals: Electrical Generation, Distribution and Utilization Equipment; Pumps, Compressors, Motors and Control; *Texrope* Drive Equipment; Processing Machinery (mills, kilns, screens, etc.); Water Conditioning Systems, plus Materials Handling Equipment.

Texrope is an Allis-Chalmers trademark.

A-C ALLIS CHALMERS

A-5915



HOW CAN ALUMINUM JACKETING SERVE YOU BETTER AT LESS COST?

You'll find the answer to this, and many other questions concerning aluminum jacketing, in Kaiser Aluminum's free 40-page brochure, "Insulation Jacketing Materials and Methods."

How does the installed cost of aluminum jacketing compare with other insulation finishes? How can dry-wall construction techniques save you labor time and money? What are "snap jackets" and how can they cut installation costs? How do aluminum's advantages of superior corrosion resistance and durability work in your favor, saving you hundreds of dollars over the years?

The answers to these questions can save you money on installed costs and maintenance costs. They're all here—plus full information on aluminum jacketing alloys, fasteners, applications, specifications.

Send for Kaiser Aluminum's "Insulation Jacketing Materials and Methods" brochure now. Mail the coupon!

Kaiser Aluminum construction industry specialists are available to offer immediate engineering assistance on the use of aluminum for insulation jacketing or other applications in your industry. Contact your nearest Kaiser Aluminum sales office for full information.

KAISER ALUMINUM

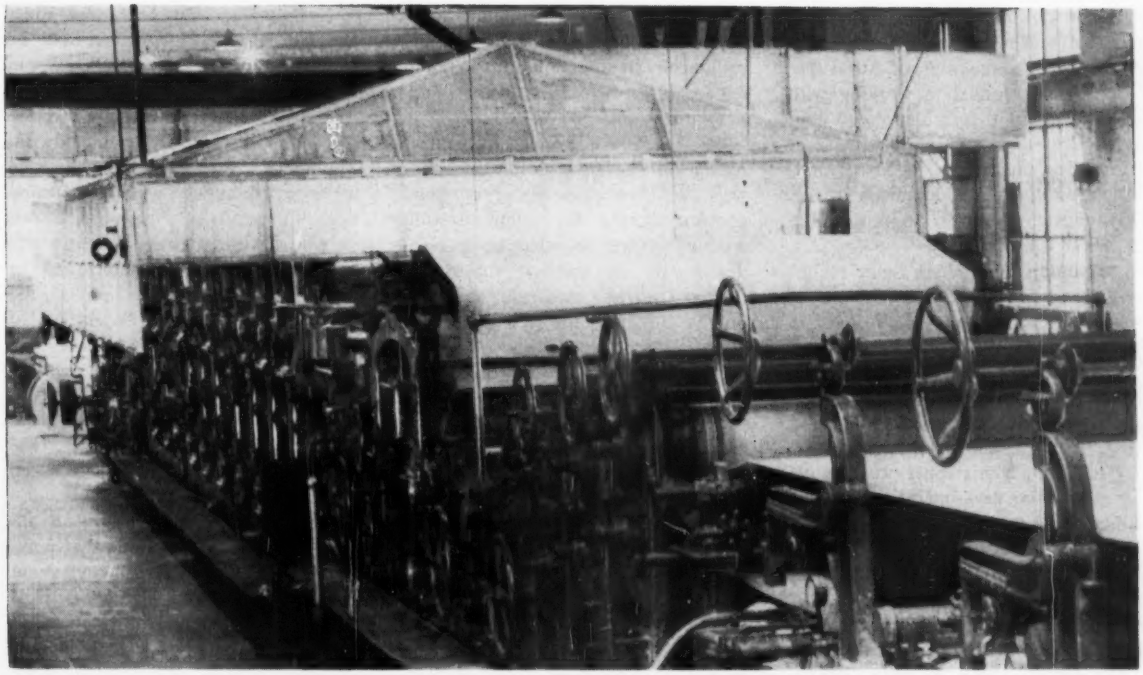
Kaiser Aluminum & Chemical Sales, Inc.
Dept. IB-5 1924 Broadway
Oakland 12, California

Please send me your free brochure, "Insulation Jacketing Materials and Methods."

NAME_____

ADDRESS_____

CITY_____ **STATE**_____



First commercial cyanoethylated product—thermally stable kraft—is made on this cylinder machine.

Cyanoethylation Gets a New Lease on Life

General Electric Co. this week is busily studying new applications—both electrical and nonelectrical — for its cyanoethylation process. GE has already brought this long-studied process to commercial reality in the cyanoethylation of kraft paper for use as insulation in transformers (CW Technology Newsletter, July 25).

The new paper, manufactured (*picture*) for GE by Hollingsworth & Vose Co. (East Walpole, Mass.), offers several advantages. Chief one: resistance to thermal degradation. Its dielectric properties hold up for long periods under temperatures that would quickly degrade untreated kraft. Thus, transformers can be run at higher temperatures without shortening their lifetime.

Reasons why GE has been able to commercialize this long-studied process, the company says:

- Need for thermally upgraded paper has increased sharply in the past few years because of new highs in peak electrical loads.
- Manufacturing costs have been lowered by working out production bugs of cyanoethylation, although economics still limit its use.

Result of these factors: a new insulation called Permalex.

Other possibilities for cyanoethylating various kinds of cellulose have been studied by many researchers for over half a century. Textile modification has been studied the longest. Cyanoethylated cotton shows good rot resistance, but cost of the treatment has made commercialization uneconomic. In the application that finally made the grade, cost of the treated product (insulating paper) made up only a small part of the total cost of the final product (transformers). Best bets for future commercialization will probably have similar economics.

Another plus value that cyanoethylation can impart to paper is improved dimensional stability, an important variable in maps, computer punchcards, other papers where constant dimensions are critical. Interest of International Business Machines is shown by a joint paper—with American Cyanamid—at a U.S. Forest Products Laboratory (Madison, Wis.) conference in early '59. Possibly, this would prove to be an application where the additional cost may be justified by a gain in a vital property that would otherwise be unobtainable.

Time to Move: Although GE's patent (U.S. 2,535,690) is nine years old, various circumstances kept it from being commercialized until this year. For one thing, original hopes of using the process for making thin capacitor paper never materialized, mainly because of cost. And the actual application of the process to full-scale production equipment was slowed down until ways could be found to increase the efficiency of the desired cyanoethylation reaction, thus conserve acrylonitrile.

But the deciding factor was the increase in peak electrical loads experienced in recent years, mainly due to the widely spreading use of air conditioning. Once the decision was made that transformers would have most need of the new paper, GE ran extended tests (some up to 240 C) to perfect the new insulation. Only then

was it ready to give the go-ahead for full-scale manufacture.

Once GE was satisfied, it went to Hollingsworth & Vose, a firm that specializes in making industrial papers, is accustomed to working with a wide variety of formulations. Within a week of that time, early in March, H&V had turned out its first cyanoethylated kraft. Its shipments to GE have since amounted to more than 500,000 lbs.

Minimum Investment: Since cyanoethylation can be carried out in conventional equipment, H&V had to make no major capital investment. The only purchases were those necessitated by providing explosionproof facilities and safety clothing and equipment for the operators.

The mill hands were trained to carry out the new operation without difficulty. American Cyanamid Co., H&V's acrylonitrile supplier, sent a team of industrial hygienists to the mill to instruct H&V's employees on the peculiarities of acrylo and safe practices for handling it.

At H&V's mill, the cyanoethylation is carried out on pulp in rotary boilers. The product then moves to a pulp beater, and on to the papermaking machine. (Although textiles and wood can be cyanoethylated in finished form, the mechanical weakness of wet paper requires that it be treated in the pulp stage.)

Process Efficiency: Biggest problem is getting best utilization out of the acrylonitrile used. Efficiency of the reaction is measured by comparing the amount of acrylo contained in the finished product as cyanoethyl groups with the amount fed to the reactor. An efficiency of 30% is considered good, with 20% more likely in large-scale production. Biggest drain on acrylo is reversion of cyanoethylated cellulose, upon further reaction with acrylo and water, to the original cellulose and β,β'-oxydipropionitrile. Polymerization and other side reactions also tend to lower efficiency.

Best way to increase reaction efficiency is by good agitation. The pulp suspension, even in a large excess of sodium hydroxide solution, requires the best available mixing to keep the mass moving. Other techniques used to boost efficiency and uniformity of the reaction: slow addition of the acrylonitrile, maintenance of mixing for several hours after the acrylo has been added. Typical reaction conditions: acrylo-to-pulp weight ratio of 2:3; about 20:1 weight ratio of 10% sodium hydroxide solution to pulp; temperature of 15-20 C; atmospheric pressure.

The reaction is stopped by neutralization of the basic solution with a weak acid such as acetic or phosphoric, filtering the pulp, carefully washing it free of electrolytes. The degree of cyanoethyl substitution achieved varies with the acrylo-to-pulp ratio and the reaction time. Measurement is usually made in terms of the weight of nitrogen contained in the final product. The GE patent covers the range of 0.3-2.8% nitrogen.

Other Routes: American Cyanamid has patents pending on a "dry" process that has shown laboratory efficiencies as high as 60%. In it, water is squeezed from the pulp before reaction, leaving a mass consisting of about half pulp, half caustic solution. Acrylo is added by spraying, in an inert atmosphere — where the absence of oxygen apparently lessens the chances of forming by-product oxycellulose. Big problem: adequate mixing of the thick mass.

Monsanto has proposed another approach to avoiding oxydipropionitrile: reaction in the vapor phase, continuous removal of an azeotropic mixture of acrylo and water. The alkaline cellulose is contacted with acrylonitrile vapors at 70-80 C, according to the company's U.S. Patent 2,860,-946. And an older Du Pont patent (U.S. 2,375,847) describes a process for cyanoethylating cellulose with "at least five times its weight of acrylonitrile."

Next Move: GE is currently leaving its plans flexible so that it can take advantage of new commercial applications. The present agreement with Hollingsworth & Vose calls for exclusive sale of the treated paper to GE. Policy on licensing other papermakers to use the process or other customers to use the product is yet to be determined. The company's next move depends on the opening up of practical new uses for the process. Now that it has commercial quantities of the material to work with, GE is in a good position to evaluate the full-scale economics of the method.

PROCESSES

Nuclear Fuel: Feasibility of producing nuclear fuel in Austria will be studied jointly by three European firms: Oesterreichische Stickstoffwerke AG. (Linz, Austria), and the German firms of Degussa and Rio Tinto AG. Negotiations are reported to be near completion for the formation of a study group to be known as Austria-Chem-Atom. Purpose will be to investigate all ramifications of nuclear fuel production in Austria.

•

Plastics Processing: Armour Research Foundation of Illinois Institute of Technology (Chicago) reports that commercial plastics can be given greater strength and better electrical properties by processing them in an electrical field.

Preliminary experimental results indicate that the tensile strength of polystyrene can be increased by about 25% via processing in the electrical field and with external heating. Other plastics being investigated include polyethylene and polyvinylidene chloride.

•

Metal Purification: Two new methods of purifying metals have been developed. In one, Farbenfabriken Bayer AG. (Leverkusen, Germany) adds calcium monofluoride to the metal smelt. Sulfides and oxides are precipitated from the mixture in this treatment, leaving a pure metal in which sulfur and oxygen cannot readily be detected.

The other process is said to be the first successful vacuum degassing of steel while in the ladle. A. Finkl & Son (Chicago) says it has developed the process for removing hydrogen from molten steel on a production basis. Oxygen and nitrogen are removed at the same time. Degassing takes place in an evacuated chamber large enough to contain the steel-holding ladle.

•

Hydrogen Treating: A new regenerable nickel-containing catalyst for removing nitrogen and sulfur from catalytic reforming feedstocks has been developed by Universal Oil Products Co. (Des Plaines, Ill.). Another use: treatment of intermediate oils for improved color, storage stability and sulfur reduction.

The new catalyst, called S-4, is said

CHEMICALS OUTLOOK

August, 1959

This news bulletin about Wyandotte Chemicals services, products, and their applications, is published to help keep you posted. Perhaps you will want to route these and subsequent facts to interested members of your organization. Additional information and trial quantities of Wyandotte products are available upon request . . . may we serve you?

GEISMAR WORKS' CHLORINE-CAUSTIC PLANT GEARING FOR FULL CAPACITY

In operation since last March, chlorine-caustic facilities at Wyandotte's Geismar Works near Baton Rouge, Louisiana, are being readied for full designed capacity (300 tons chlorine, 330 tons caustic daily). Construction has been completed except for building the additional cells . . . a job now under way by Wyandotte personnel, keeping apace of the Southern demand for chlorine. Liquid caustic soda in 74% concentration is now available, as well as 50% liquor.

Chlorine pipeline-loading facilities on the Mississippi River, completed in early August, extend from storage tanks in the chlorine plant area to our dock at the river.

This addition, together with our present caustic soda line, enables Wyandotte to ship both chlorine and caustic by barge and ocean tanker from the Geismar Works. The purchase for year-end delivery of two new river barges for transporting caustic soda will further ensure Wyandotte customers of ready water shipment.

Milestone: The first oceangoing ship to load a cargo at Wyandotte's Geismar Works left recently for Stockholm, Sweden. The Motor Transport Selje was loaded with 1,100 tons of ethylene glycol . . . river and ocean barges have been transporting glycol from here for some time.

Dock facilities at Wyandotte's Louisiana installation are engineered to accommodate the largest steamer that can navigate up the Mississippi River to the plant site. The 600-ft. dock can load efficiently when the river is at flood stage, as well as under normal conditions.

RESEARCH PAPER DESCRIBES SYNTHESIS OF FERROCENES

Dr. Robert L. Schaaf of Wyandotte's contract research department presented a paper entitled, "Synthesis of Siloxanyl Ferrocenes," at the recent spring meeting of the American Chemical Society in Boston.

Because of their high thermal stability, the liquid ferrocenes are of particular interest as potential lubricants for high-temperature applications. Inquiries concerning copies of this paper should be directed to the American Chemical Society.

Wyandotte CHEMICALS

WYANDOTTE CHEMICALS CORPORATION
WYANDOTTE, MICHIGAN • OFFICES IN PRINCIPAL CITIES

SODA ASH • CAUSTIC SODA • BICARBONATE OF SODA • CALCIUM CARBONATE • CALCIUM CHLORIDE • CHLORINE • MURIATIC ACID • HYDROGEN • DRY ICE
PROPYLENE DICHLORIDE • SYNTHETIC DETERGENTS • SODIUM CMC • ETHYLENE OXIDE • ETHYLENE DICHLORIDE • POLYETHYLENE GLYCOL • PROPYLENE OXIDE
GLYCOLS • POLYPROPYLENE GLYCOL • DICHLORODIMETHYLHYDANTOIN • CHLORINATED SOLVENTS • OTHER ORGANIC AND INORGANIC CHEMICALS

☐ **CHEMICAL ENGINEERING ECONOMICS**

Just Published—Helps you make profitable decisions in evaluating projects. Covers such problems of chemical industry as investment, cost, price, profit, and process development. **By C. Tyler and C.H. Winter, Jr., E.I. duPont de Nemours & Co. 4th Ed. 187 pp., 40 illus., $7.00**

☐ **CHEMICAL ENGINEERING CALCULATIONS**

Mass and Energy Balances

Just Published—Develops principles of equilibrium as applied to distillation, adsorption, extraction, and thermodynamics. Phase diagrams are thoroughly treated. **By Ernest J. Henley, Stevens Inst. of Tech., and Herman Bieber, Esso Research. 441 pp., 113 illus. $9.00**

☐ **HIGH RESOLUTION NUCLEAR MAGNETIC RESONANCE**

Just Published—Explains principles and applications of this research tool. Covers spectral analysis, chemical shifts, and other topics. **By J.A. Pople, Nat'l. Phys. Lab., England, and W.G. Schneider and H.J. Bernstein, Nat'l. Res. Council, Canada. 501 pp., 199 illus., $13.50**

☐ **ORGANIC CHEMISTRY**

Just Published—Explains how organic compounds are formed and how they react. Explains such topics as use of organic reactions for synthetic purposes, systematic correlation of reactions, resonance, and molecular bond theory. **By D.J. Cram, U.C.L.A., and C.S. Hammond, Calif. Inst. of Tech. 950 pp., 183 illus., $8.50**

☐ **CHEMICAL ENGINEERING PLANT DESIGN**

Just Published—Fully describes chemical plant design procedures, from research lab through final plans. Covers latest advances in plants, processes, equipment—plus nuclear chemical plant design. **By F.C. Vilbrandt, Va. Poly. Inst., and C.E. Dryden, Ohio State Univ. 4th Ed. 545 pp., 118 illus., $12.00**

☐ **SUCCESSFUL TECHNICAL WRITING**

Articles, Papers, Reports, Instruction and Training Manuals, and Books

Just Published—Step-by-step methods for any technical, engineering, or scientific writing job. Shows how to get ideas, write them up, and get into print. **By T.G. Hicks, author, editor, engineer, instructor at Cooper Union. 287 pp., 30 illus., $5.50**

SEE THESE BOOKS 10 DAYS FREE

McGraw-Hill Book Co., Dept. CN-8-15
327 W. 41st St., N.Y.C. 36

Send me book(s) checked below for 10 days' examination on approval. In 10 days I will remit for book(s) I keep plus few cents for delivery costs, and return unwanted book(s) postpaid. (We pay delivery costs if you remit with this coupon—same return privilege.)

☐ Tyler & Winter—**Chem Engrg. Econ.**, $7.00
☐ Henley & Bieber—**Chem. Engrg. Calc.**, $9.00
☐ Pople, et al—**High Resolution Nuclear Magnetic Resonance**, $13.50
☐ Cram & Hammond—**Organic Chem.**, $8.50
☐ Vilbrandt & Dryden—**Chem. Engrg. Plt. Des.**, $12.00
☐ Hicks—**Success. Tech. Writing**, $5.50

(PRINT)

Name .....
Address .....
City ..... Zone ..... State .....
Company .....
Position .....

For price and terms outside U. S. write McGraw-Hill Int'l., N.Y.C. CN-8-15

to be almost twice as effective as previous catalysts in removing nitrogen. Other advantages: higher sulfur-removal activity, lower density (thus decreasing catalyst requirements), greater heat stability, longer life.

•

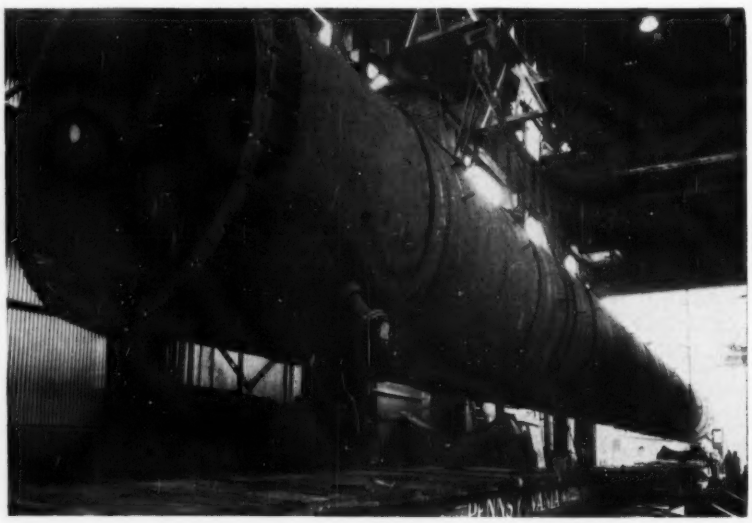
Refining Process: Atlantic Refining Co. has worked out an agreement with Engelhard Industries, Inc. (Newark, N.J.) for the licensing of Atlantic's Catforming process for producing high-octane gasoline and a high-butane-containing by-product mixture. Engelhard will supply the platinum catalyst that is the heart of the process. It is also the supplier of the RD-150 catalyst used in the Sinclair Baker reforming process. Foreign users of Catforming will be served by a new company that is currently in the planning stage at Hanover, Germany.

•

Aluminum Protection: A new process to protect aluminum extrusions has been developed by Harvey Aluminum (Torrance, Calif.). The process consists of the application of a special finish, called Anocote, to the metal. The clear finish is said to eliminate superficial corrosion as well as to offer mechanical protection to the metal surface.

•

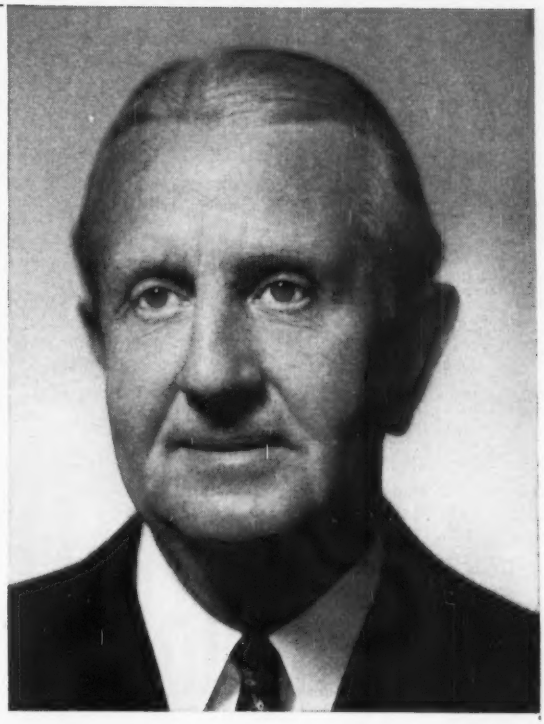
Continuous Pulping: The University of Florida (Gainesville) will build a pilot plant to test economics of its continuous pulping process, developed by William Nolan, head of the university's pulp and paper laboratory. The pilot plant, planned for completion by September, will be used to study production efficiency, time and cost reduction and odor elimination. The university's process is said to reduce the time needed for conventional batch pulping from as much as 3½ hours to about 25 minutes. The growing popularity of continuous pulping is attested to by Kamyr, Inc., U.S. representative for the Swedish Kamyr continuous process (*CW, Dec. 28, '57, p. 49*). Kamyr has sold seven installations since it started operations in '56, has current negotiations under way that could more than double this total.



For Sun's Propylene: A Big Column

This 145-ft. distillation column is one of two such units to be used at Marcus Hook, Pa., by Sun Oil Co. for producing propylene. Being readied for shipment from the Chester, Pa., boiler shop of Sun Shipbuilding & Dry Dock Co., the column will hold about 70 fractionating trays, has an inside diameter of 10 ft. The $2-million propylene plant will supply much of its 120-million-lbs./year, 99.9% pure output to AviSun for the manufacture of 20 million lbs./year of polypropylene at Port Reading, N.J. Other propylene derivatives will be made by Sun (*CW, Aug. 1, p. 23*).

"...an investment that makes all other investments worthwhile"



JOHN COLLYER
Chairman of the Board
The B. F. Goodrich Company

"For much of our nation's progress, technologically, economically and socially, we must look to the excellence of our institutions of learning, whose students of today will be the scientists, the managers, the statesmen and the cultural and religious leaders of tomorrow.

"It is the responsibility of the American people and American industry to provide the financial aid so urgently needed now by our colleges and universities.

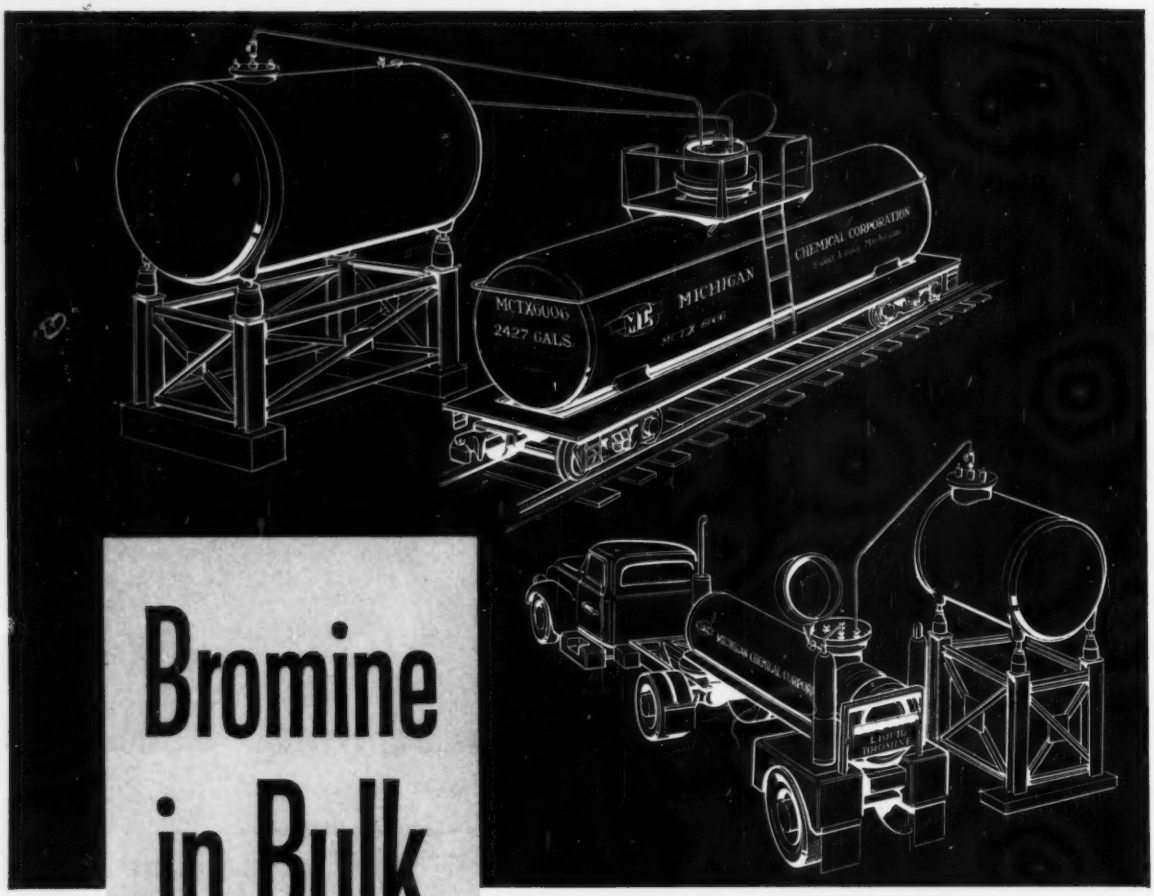
"Join this important crusade. Contribute today to the university or college of your choice. You will be making *an investment that makes all other investments worthwhile.*"

If you want more information on the problems faced by higher education, write to: Council for Financial Aid to Education, Inc., 6 E. 45th Street, New York 17, N. Y.

Sponsored as a public service, in cooperation with the Council for Financial Aid to Education

HIGHER EDUCATION
KEEP IT BRIGHT

ADVERTISING COUNCIL
PUBLIC SERVICE



Bromine in Bulk

Saves Dollars! Saves Time!

LOOK AT THESE ADVANTAGES: Thousands of dollars a year can be saved by converting facilities to receive bromine in bulk. For example, with tank car orders, you save 9½¢ a lb. as compared to the drum price; 10½¢ a lb. over bottles. With tank truck orders, you save 7¢ a lb. over drums and 8¢ a lb. over bottle shipments. You will free considerable capital now tied up in container deposits. Finally, you will save both time and money now used in handling the smaller bromine containers.

BULK STORAGE PAYS OFF FAST! If you use as little as 60,000 lbs. of bromine a year, delivered by tank truck, you can save the cost of the necessary 1000 gal. bulk-storage installation in about a year. Tank cars are available in 60,000 lb. and 100,000 lb. capacities. Tank trucks contain 14,000 lbs. each.

WE CAN SHOW YOU HOW! Our experience in the storage and handling of bromine is extensive and we want to share it with you. If you would like engineering prints, specifications, and technical counsel, get in touch with us. Michigan Chemical also offers you these advantages: A steady, uncommitted supply of bromine at tonnage prices; and a large bromine bulk fleet for prompt service.

Bulk shipments from: El Dorado, Arkansas and Manistee, Michigan. Drums and bottles from Manistee and convenient warehouse locations.

For complete listing of Michigan Chemical products, see your copy of Chemical Materials Catalog or Chemical Week Buyers Guide.

MICHIGAN CHEMICAL CORPORATION

642 North Bankson Street, Saint Louis, Michigan

EASTERN SALES OFFICE: 230 Park Avenue, New York 17, N. Y.

C-59-1

Copyright 1959 Michigan Chemical Corporation

Market Newsletter

CHEMICAL WEEK
August 15, 1959

Keen competition among Pacific Northwest resin producers takes on a sharper edge as plywood makers continue to switch to captive production of resins for adhesives. Latest on the scene: Evergreen Chemical (which may soon be renamed Evergreen Adhesive and Chemical), set up by Astoria Plywood (Astoria, Ore.) and Multnomah Plywood (Portland, Ore.)—two cooperative organizations.

Although Astoria and Multnomah are now principal stockholders and will take most of Evergreen's initial output of about 1 million lbs./month of glues and resins, other co-ops will likely become customers if not shareholders.

Custom-blended powdered glues are already being delivered to the parent companies; full-scale manufacture of protein glues, synthetic resins (phenol-formaldehyde and urea-formaldehyde) is scheduled for about three months from now.

There's cause for concern among independent resin makers as the swing toward captive resin and adhesive production by plywood makers gains momentum. (Actually, some plywood makers have been making their own resins for the past 20 years.)

Added evidence of a trend-in-the-making was startup earlier this year of Georgia-Pacific Corp.'s "sizable" resin plant at Coos Bay, Ore.; it's now operating on a 20-day/month schedule, supplies resins for several G-P plywood plants in Washington and Oregon.

The developing do-it-yourself trend won't seriously hurt the integrated resin producer who can at least provide raw materials (Reichhold, for example, sells raw materials to G-P); but it will undoubtedly be a source of trouble for resin makers who are unable to act as raw-material suppliers.

•

Latest glycerine figures paint a bright background for prospects of a forthcoming boost of the nation's synthetic glycerine capacity (*see p. 75*). The Assn. of American Soap and Glycerine Producers this week reports that "disappearance" (approximately equivalent to consumption) of glycerine—synthetic plus natural—amounted to 126.7 million lbs. in the first six months of '58; that's 11% more than was used in the same period of '57.

Reasons for the pickup: improved national economy, increased demand for alkyd resins, lower imports. Outlook for the whole of '59: a good chance of topping the 243.3-million-lbs. record disappearance in '57.

•

The Canadians may enter the U.S. nylon/rayon tire-cord hassle, according to Dominion CPI observers, who say there's a chance that Canadian Industries, Ltd., may try to get into U.S. tire markets in a big way.

Reason: the firm has developed—is now patenting—a method that provides satisfactory adhesion between its Terylene polyester fiber and rubber.

But it's also noted that CIL may prefer to license its method to a U.S. company rather than market directly. Either way, the U.S. tire-cord market is sparking CIL's interest because other synthetic fibers—notably Du Pont's Dacron—are being pushed into the nylon/rayon fray.

•

U.S. citric acid buyers will have a second source this fall when Miles Chemical (Elkhart, Ind.) completes its $3.6-million citric acid expansion. The boost will more than double the firm's citric potential—to more than 15 million lbs./year.

Miles has heretofore made the acid only for captive use, but will now be able to step into the open market in competition against Pfizer —only U.S. producer-seller now in the business.

•

Pacific Carbide & Alloy's vinyl acetate monomer plant at Portland, Ore. (*CW Business Newsletter, Aug. 1*) is considered by company spokesmen to be a boon for West Coast users of the chemical. They now get their supplies from the East; and because the material is in emulsion form, substantial freight charges are being paid to transport water across the country.

PC&A's 5-10-million-lbs./year unit—costing $500,000—will be erected on a one-acre site adjacent to the firm's carbide and acetylene plant, which will supply the acetylene feedstock; needed acetic acid will probably be shipped from the Gulf states.

•

Price of glacial methacrylic acid has been reduced up to 5¢/lb. by two producers—Rohm & Haas, which initiated the reductions, and Du Pont, which quickly followed suit "to meet competition." Rohm & Haas attributed its move to cost reductions made possible through increased volume sales.

Bulk quantities were reduced 5¢/lb.; drum quantities, 4½¢/lb.; the new tank-car and tank-truck price is now 40¢/lb. The new tabs became effective Aug. 10.

SELECTED PRICE CHANGES—WEEK ENDING AUGUST 10, 1959

	Change	New Price
UP		
Copra, Atl., Gulf ports, ton	$10.00	$215.00
Piperazine citrate, 36%, dms., 1,000 lbs. or more	0.11	1.15
DOWN		
Amyl salicylate, cns., dms.	$ 0.12	$ 0.73
Blood dried, 16-16½% ammonia, ton	0.75	5.00
Cocoa butter, bgs.	0.005	0.675

All prices per pound unless quantity is quoted.

DOW | CHEMICALS

Announcing Dow's newest producing point for propylene oxide, propylene glycol, propylene glycol USP and derivatives . . . on stream at

PLAQUEMINE

Because of the ever-increasing industrial utilization of propylene oxide and propylene oxide derivatives, Dow has added PO production facilities at Plaquemine, Louisiana, to its producing points at Midland, Michigan, and Freeport, Texas. These plants, along with Dow's three major bulk terminals in New York, Chicago and Los Angeles, comprise the most complete propylene glycol and PO production and distribution network in the nation. Continuous abundant supplies of high quality PO and its derivatives . . . readily available . . . assure prompt delivery.

An additional benefit customers derive from Dow's many years of experience with propylene products: utmost protection given to shipments. Drums lined with epoxy resins are used to prevent iron pick-up and guard against contamination. And aluminum tank cars protect the purity of bulk shipments.

Most important, whether your propylene product order is filled at Freeport, Midland or Plaquemine, you can be sure of superior quality, and rigid adherence to specifications . . . distinguishing trademarks of all Dow chemical products.

The Dow team of scientists, engineers, production and marketing specialists—all highly experienced in propylene oxide and its derivatives—is at your service. Call the Dow sales office in your area, or write THE DOW CHEMICAL COMPANY, Midland, Michigan, Chemicals Merchandising Department 1107AM8-15.

THE DOW CHEMICAL COMPANY • MIDLAND, MICHIGAN

Synthetic star rubies, such as the one this customer wants, are hard to distinguish from natural stones.

Synthetic Gem Stones Meet New Resistance

Last week, Carroll Chatham, San Francisco producer of man-made emeralds, took advantage of a retail jewelers' convention in New York to unveil his latest chemical process feat —man-made pigeon-blood rubies (CW, Aug. 1, p. 43).

But any move to sell these rubies as man-made gem stones is almost certain to throw new fuel on the hot battle now raging between the jewelry trade and Chatham's sales representative, Cultured Gem Stones, Inc., which markets Chatham's emeralds.

The synthesis of precious stones—rubies, emeralds, sapphires and industrial diamonds—is not new. But marketers of the fine stones for jewelry use have run into the stiff opposition of the jewelry trade, headed by its watchdog, the Jewelers Vigilance Committee.

At stake is a small but growing market. In prerecession '57, synthetic gems accounted for $1 million in U.S. sales, $10 million in foreign sales. Domestic sales of natural gem stones reached $15 million that year.

Meanwhile, industrial uses for man-made crystals have been mushrooming. Reasons: ready availability in intricate shapes, lower cost than natural stones, and technical superiority for most jobs.

'Cultured' Emeralds? The jewelry trade is barely tolerant of any of the man-made gems. Under these circumstances it is not surprising that the jewelers have drawn a bead on Carroll Chatham and his marketing representatives, the Ipekdjian Co. (Cultured Gem Stones, a subsidiary, actually sells the stones.)

The jewelers, backed by reputable gemmologists throughout the world, contend that Ipekdjian and Chatham are misleading the public by describing their man-made emeralds as "cultured" rather than synthetic. The word "cultured" has connotations of biological formation, they say, which can't be claimed for the Chatham emerald.

Head-on Fight: First, the Jewelers Vigilance Committee issued formal complaints to the Federal Trade Commission's Bureau of Consultation. Now, its Bureau of Investigation is reportedly completing a full investigation. And the coming months will likely see further formal actions to curb the sale of Chatham's "cultured" emeralds.

The jewelry trade recognizes only three categories of precious stones: natural, synthetic (which are man-made and have about the same physical properties as naturals, and are

CW PHOTOS—MARSHALL

Large, high-quality synthetic gems command fairly high prices.

in Latest Push for Sales

chemically identical) and imitation (which are most often cut glass).

Chatham and Ipekdjian, on the other hand, hold that they are not misleading anyone, are trying to sell these emeralds for what they are—gems produced by man using a technique that more closely approximates nature's process than that used to make other synthetic stones.

Details of Chatham's process have remained secret for nearly 20 years, and without patent protection, but he hints that he seeds a liquid system (either a melt or a solution) with natural beryl, then grows, or "cultures," his emeralds over a 10-month period (*CW, June 11, '55, p. 21*).

Because he "grows" emerald crystals for nearly a year, rather than shaping them in minutes as other synthetic precious stones are made, Chatham believes he has a unique product deserving a better name than synthetic. This term, says Ipekdjian, carries with it the connotation of cheap, substitute or false in most people's minds, including jewelers'.

Chatham isn't alone in his distaste for the term "synthetic" as a description of manufactured precious stones. General Electric calls its industrial diamonds man-made, holding emphatically that they are not synthetic. And Linde Co. (division of Union Carbide Corp.) calls its man-made star sapphires and rubies Linde Stars, carefully avoiding any mention of "synthetic" except when they actually include the terms ruby or sapphire (as in Linde synthetic star rubies).

Moreover, gem experts agree that many jewelers know little about the synthetic and imitation stones. Some may not know enough to explain the differences; others, says Ipekdjian, intentionally downgrade the synthetics by lumping them with imitations; hence, the public is misled on the nature of man-made stones with obviously damaging effects on sales. But this deception is not regarded by the Jewelers Vigilance Committee as serious as Chatham's alleged deception.

The long-brewing argument between synthesizers and jewelers has had its rough moments. Chatham charges that the group once attempted to have him arrested, have used other pressures to keep his man-made emeralds off the market.

Edward Coyne, Chatham sales manager told *CW*, "We are not going to back out now. This will be a tough fight right to the end."

Linde's Approach: Carbide's Linde Co., facing much the same competitive conditions as Ipekdjian, has made its peace with the jewelry trade. Linde promotes its star sapphires and rubies—the biggest part of its gem sales—as the aforementioned Linde Stars. It also markets some spinel, made by the Verneuil (flame-fusion) technique. But world markets for this stone, along with plain-faceted rubies and sapphires, are dominated by much less expensive Swiss, German or French stones. Linde's formula: produce star rubies and sapphires and complex shapes for industrial uses under patent protection.

Linde, like other synthetic stone producers, uses distributors to move its gem material to cutters, then to jewelry makers, or to jewelry retail outlets.

Three U.S. agents and one foreign representative comprise the tightly knit marketing team. Promotion is pitched to each of the buyers along the way: manufacturers, jewelry stores, consumers. Newest item: a 13½-minute color film, "The Gift of Kings," soon to be released for showing before women's clubs, civic organizations, and on TV.

National Lead's Entries: Using the Verneuil process, the National Lead Co. makes several other gem materials. One of these, rutile, is rarely found in nature in pure enough form to be used for gems. But the brilliant stones from its furnaces rival

PLANT
SITE
INFORMATION

Along the thousands of miles comprising the Seaboard Air Line Railroad system there are numerous excellent plant sites, large and small, from which you may select the one location best suited to your special requirements.

Full information on locations in Virginia, North Carolina, South Carolina, Georgia, Florida and Alabama may be obtained from us without cost or obligation to you.

•

Address:
Warren T. White
Assistant Vice President
Seaboard Air Line Railroad Company
3600 West Broad Street
Richmond, Virginia

SEABOARD
AIR LINE RAILROAD

Resin producers
gain THREE ways with
MERICHEM
CRESYLIC ACIDS

Custom blending of phenol, ortho cresol, meta-para cresols and xylenols . . . and rigid control over composition . . . together give you

- Better Performance
- Uniform Quality
- Lower Costs

in the manufacture of molding powders, laminating resins, lacquers and adhesives.

For further information call or write

THE MERICHEM DIVISION
JEFFERSON LAKE SULPHUR COMPANY
1810 Prudential Bldg., Houston 25, Texas
Telephone JAckson 6-2811

WHO MAKES SYNTHETIC GEM MATERIALS

Gem	Composition	Raw-Material Producers
Ruby	Corundum (aluminum oxide)	Linde Co. Carroll Chatham*
Sapphire	Corundum	Linde Co.
Emerald	Beryllium aluminum silicate	Carroll Chatham
Spinel	Magnesia-alumina	Linde Co.
Titania	Titanium dioxide	National Lead Co. Linde Co.
"Fabulite"	Strontium titanate	National Lead Co.

* Not yet producing commercially.

diamonds. Nevertheless, since the gems chip and scratch easily, gem experts generally agree that their future isn't bright.

Another of National Lead's synthetics, strontium titanate, is a crystal that does not occur naturally. Launched as "Fabulite," this stone could become quite popular, according to William V. Schmidt Co., exclusive distributor. The American Gem Society thinks so, too.

Industrial Uses Grow: While man-made precious stones battle tooth-and-nail for a place in the jewelry market, synthetic crystals are taking on new industrial and defense jobs.

Over 85% of Linde's total crystal sales are for industrial uses; profits, though, are slimmer on industrial sales. Here, as in the gem business, Linde concentrates where it can offer the most: on complex shapes. Some of the applications for rubies and sapphires: textile guides, cable connectors, electron-tube supports, infrared windows (up to 3 in. in diameter) and radiation pipes (for accurate measurement of high temperatures).

Man-made emerald, though not as hard as corundum (ruby and sapphire), has also found its way into industry. Most important application: masers for receiving space signals free from background noise.

Selling these stones and shapes for industrial uses is, of course, completely different from the gem marketing problem. Here, the materials are sold on their merits and relative costs; and the synthetics are almost always less expensive and technically superior. Added advantage: the man-made materials can be shaped and sized for specific jobs. Moreover, crystal sellers don't have to contend with intricate psychological and emotional feelings that, Linde told *CW*, "are so complex, we refuse to spend any money to fathom them."

GE vs. De Beers: The advent of synthetic industrial diamonds has begun what may be a revolution in industrial grinding, drilling and finishing.

General Electric in 1955 announced its process for making man-made diamonds, began commercial production in 1958. Two accomplishments:

(1) It provided another source of supply besides De Beers Consolidated Mines, Ltd.

(2) It stabilized the price of industrial diamonds at about $2.80/carat.

GE marketed 750,000 carats of diamonds valued at $2 million during the past year. Some trade sources put GE's current share of the estimated $45-million-dollar industrial diamond market at 20%. Others contend it's about 10%.

General Electric told *CW* it is considering changing its distribution system by adding more salesmen, and bringing in distributors. Basis for the change, GE said, is its estimate of total industrial diamond markets by 1966: a healthy $200 million.

Why will the market grow so rapidly? Because, says GE, of many new uses occasioned by today's higher machining speeds, tougher space-age metals and ceramics, and the need for finer tolerances.

Meanwhile, the De Beers Syndicate, which controls over 90% of the

world's natural diamond supply, is thriving. Its gem diamond sales continue strong, and sales of industrial diamonds to the U.S. during the first five months of '59 set a new record: over $27 million (same period '58, $14 million).

Naturally, the De Beers group was concerned last year when GE began selling industrial diamonds. But the group's watchful concern gradually changed to an air of confidence.

Sir Harry Oppenheimer, chief executive of De Beers, stated in his annual report for '58 that he doubted if the man-made diamonds could match the naturals in all jobs.

De Beers' Sales Push: Despite its current healthy marketing position, the De Beers group realizes that, for the first time in recent years, there's an oversupply of crushing boart—fine diamond particles—which competes directly with GE's diamonds.

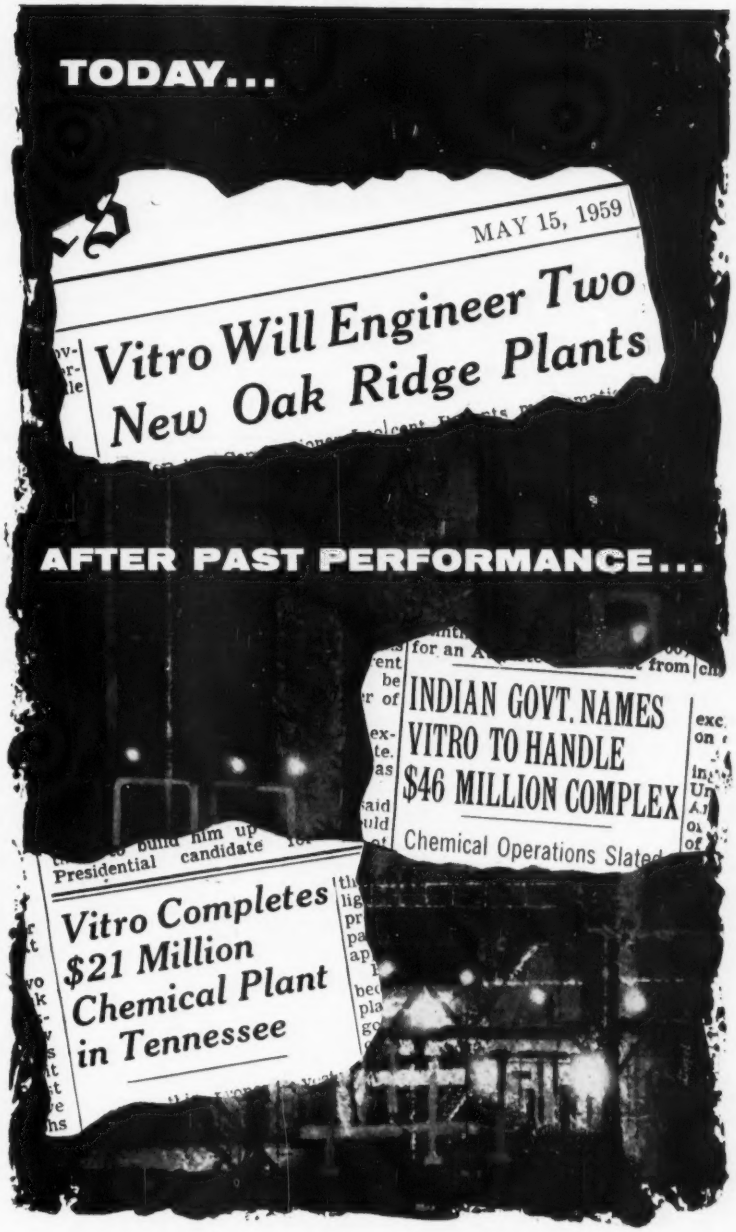
As a result, De Beers has greatly increased development work at its Diamond Research Laboratory in Johannesburg, Union of South Africa.

Promotional efforts have also been stepped up. Before GE came into the market, De Beers did little advertising; since September, a greatly augmented advertising and publicity program has been launched.

In this struggle for sales, GE isn't standing still, either. Latest move: a price drop of 7%, bringing the synthetics in line with natural industrial diamonds.

Looking Ahead: The synthesis of gem-size and quality diamonds still represents the biggest challenge to most crystal growers, including Carroll Chatham. GE has admitted that this is an unlikely prospect under its present synthesis process. Chatham also notes that making gem-size diamonds is a tough assignment, "but," he says, "it could happen as a freak." Moreover, the De Beers syndicate, while doubting that such a development will come soon, doesn't count it out.

Meanwhile, Chatham isn't confining his efforts to emeralds and rubies. He told *CW* he'd like to come out with a different gem each year, including diamonds. But he may have his hands full as the Federal Trade Commission completes its investigation and the litigants move ahead with formal actions. It promises to be a long, hard fight.


TODAY...
MAY 15, 1959
Vitro Will Engineer Two New Oak Ridge Plants
AFTER PAST PERFORMANCE...
INDIAN GOVT. NAMES VITRO TO HANDLE $46 MILLION COMPLEX
Chemical Operations Slated
Vitro Completes $21 Million Chemical Plant in Tennessee

Vitro means sound engineering—right from the start. Proof that quality and experience are always rewarded. Government and industry both need quick start-up, operating plant economy, and design that will not become dated.

Almost any job takes skill. As one of the several good process engineering firms, Vitro's *important advantage* is accomplishing the hard-to-do. This is its added plus.

engineering the future—

Vitro

ENGINEERING COMPANY

225 PARK AVENUE SOUTH, NEW YORK 3, N.Y.

A DIVISION OF VITRO CORPORATION OF AMERICA

FLEXIBILITY: TALENTED MEN AND VERSATILE EQUIPMENT THAT CAN BE LINKED IN MANY DIFFERENT COMBINATIONS TO OFFER YOU CUSTOM SYNTHESIS OF FINE CHEMICALS BY THESE PROCESSES:

Alkylation / Amination, Reductive / Condensations / Dehydrations / Dehydrogenations / Esterifications / Friedel-Crafts Reactions / Grignard Reactions / Halogenations / Hydrations / Hydrogenations, Catalytic / Hydrogenations, Chemical / Hydrogenolysis / Hydrolysis Reactions / Isomerizations / Mannich Reactions / Sodium Amide Reactions / Sulfonations

Inquiries answered immediately. Confidential matters kept so. Write Eli Lilly and Company • Agricultural and Industrial Products Division • Indianapolis 6, Indiana

Is Three a Crowd in Synthetic Glycerine?

Olin Mathieson this week revealed it will manufacture synthetic glycerine and epichlorohydrin. The news jolts existing producers two ways: OM—a heavy user of glycerine—will be stepping out as a glycerine buyer, at the same time will put its excess output into the open market in competition with its former suppliers.

OM's move at long last resolves a question that glycerine producers have asked for three years: Would OM ever use the fast write-off certificate issued it in '56? Now plans are firm. The unit will be built at Doe Run, Ky.; cost, $10,675,000; probable completion: early in '61. (No definite startup date has been revealed, but trade sources are guessing construction will get under way within the next two months. Construction time of such a plant is estimated at 18 months.)

With the certificate of necessity, OM is allowed to depreciate 60% of plant cost over a five-year period; 40% is depreciated under the 1954 Internal Revenue Code.

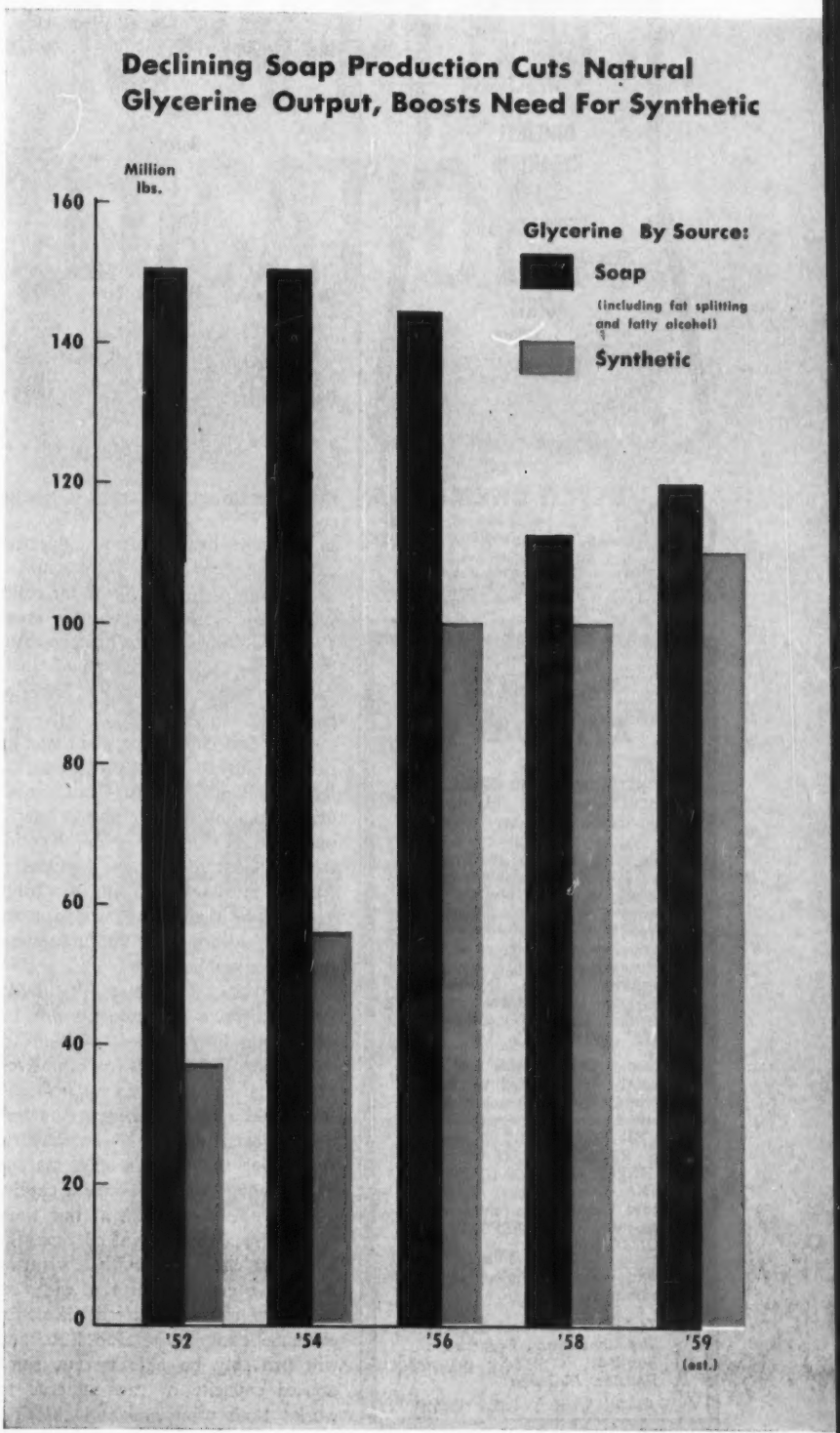
In past years, OM has kept its certificates effective by meeting periodic requirements (submitting basic engineering data, improving design, placing orders for new equipment).

No capacity figures are given for the new facilities, but trade observers believe that the initial plant will be able to produce 30-35 million lbs./year of glycerine and epichlorohydrin. And there is no doubt that the facilities will be designed to allow for later expansions.

Prospects Look Good: Reasons for the belated move by OM to build the glycerine plant are contained in some evaluations of future glycerine markets.

Edward Block, senior vice-president in charge of OM's chemical divisions, forecasts that demand for glycerine and epichlorohydrin will exceed 335 million lbs./year in the '62-'64 period. Current total demand for epichlorohydrin and natural and synthetic glycerine, he notes, is about 250 million lbs./year.

Captive Uses: OM, of course, already has a large outlet for glycerine



GLYCO

EMULSIFIERS

SYNTHETIC WAXES

DIMETHYL HYDANTOIN —AND DERIVATIVES

CHELATING AGENTS —THE TETRINES®

GLYCO CHEMICALS
division of
CHAS. L. HUISKING & CO., INC.
417 Fifth Ave., New York 16, N. Y.
Phone: ORegon 9-8400. Cables: Glycopon N. Y.—Plant at Williamsport, Pa. Chicago Office: 435 No. Michigan Ave.

PATENT ATTORNEYS

THE CHEMSTRAND CORPORATION, a ten year old, rapidly expanding company—already a leader in the chemical textile fiber field—is seeking attorneys for patent work associated with new product and process development. Law degree from an accredited institution and a minimum of two years experience in patent procedures required. Degree in science or engineering desirable. Salary commensurate with experience.

Successful applicants will ultimately be assigned to Chemstrand's new Research Center, now being constructed, in the RESEARCH TRIANGLE formed by RALEIGH, DURHAM, and CHAPEL HILL, NORTH CAROLINA or at the new Development Center, also under construction, at PENSACOLA, FLORIDA.

Send resume including salary information to:

Technical Personnel Manager
The Chemstrand Corporation
Box P-8
Decatur, Alabama

Current Synthetic Glycerine Capacity

Company	Location	Capacity (million pounds)	Process (starting materials)	Status
Shell Chemical	Houston, Tex.	90-120	Propylene and chlorine	Now in operation; epichlorohydrin by-product
	Norco, La.	——	Propylene and chlorine	Not producing glycerine
	Norco, La.	35	Acrolein and hydrogen peroxide	Due onstream later this year
Dow Chemical	Freeport, Tex.	72	Propylene and chlorine	Now in operation: epichlorohydrin by-product
Olin Mathieson	Doe Run, Ky.	30-35	*	Due early '61

*Probably propylene and chlorine.

in its cellophane and nitroglycerine explosives operations. Glycerine is used as the softening agent for cellophane—an amount equal to about 17% of the dry weight of cellophane is absorbed by the cellophane sheet as it is passed through a glycerine bath.

OM's first cellophane plant was located at Pisgah Forest, N.C.—capacity 37 million lbs./year—and a newer, 40-million-lbs./year unit is now in operation at Olin, Ind. Nitroglycerine is manufactured at two locations in Illinois, at East Alton and at Ordill. The company also uses sizable quantities of glycerine for pharmaceutical and other applications.

Trade sources estimate that OM's current captive requirements are 12-13 million lbs./year—10 million for cellophane, 2-3 million for explosives, drugs, and miscellaneous applications. Thus, OM will be offering about half of its glycerine and epichlorohydrin output for sale on the open market. The company does not have a captive use for epichlorohydrin at this time.

Still, from OM's point of view, the new plant can be a profitable venture. First, the company has a wide selection of raw materials at its petrochemical complex at Doe Run, and will probably be able to put some unused capacity or raw material to work. Both propylene and chlorine, probable starting materials, are readily available at the new plant. And, with glycerine tabs now at about 27-29¢/lb. vs. an estimated production cost for synthetic of about 18¢/lb., OM should be able to realize some definite savings on glycerine raw-materials cost.

Although actual availability of OM material is still many months away, this latest development is of major concern to glycerine marketing men. Reason: the relationship between sales of synthetic and natural material has been calm; nevertheless, with prospects of severe overcapacity, panic by any synthetic producer now could throw the entire market into a turmoil.

Natural vs. Synthetic: Since natural glycerine producers obtain their material as a by-product of soap production, fatty acid splitting or fatty alcohol manufacture, the glycerine cost allocation varies widely. Synthetic glycerine, meanwhile, is produced at a cost of about 18¢/lb. Synthetic producers, thus, have had to be content to take up the slack between natural production and total demand. But, as soap production has declined, there's been more room for synthetic. In the past two years, synthetic output has been around 100 million lbs./year. Shell has had about 70% of the market, Dow 30%. OM has been purchasing both the synthetic

and the natural glycerine types.

Present synthetic capacity is already about 190 million lbs./year. Shell is the largest factor, its Houston, Tex., unit having had a rated capacity of 90 million lbs./year. But the company reports that by using raw materials from its Norco, La., facilities, it can produce in excess of this amount. Previously, Shell operated a glycerine unit at Norco (capacity: 30 million lbs./year)—but the glycerine produced was shipped to Houston for final purification.

Now, however, the Norco unit produces only the intermediates, allyl chloride and chlorohydrins, which are shipped to Houston for further processing into epichlorohydrin or glycerine.

Shell, however, will again be producing glycerine at Norco when facilities using new raw materials—acrolein and hydrogen peroxide—can be put into operation. Shell has completed its hydrogen peroxide unit, will soon have the acrolein unit complete. The new glycerine unit at Norco (capacity: 35 million lbs./year) is expected to be ready for operation later this year.

Dow's original glycerine unit at Freeport, Tex., had a capacity estimated at 35 million lbs./year. Since then, Dow says, capacity is 72 million lbs. The process uses propylene and chlorine as starting materials, with the epichlorohydrin as an intermediate. Dow and Shell are both offering epichlorohydrin on the open market.

Capacity figures for natural glycerine—estimated at 175-190 million lbs./year—are meaningless, since output of this by-product is dependent on the demand for soap, fatty alcohols and fatty acids. And production, which is around 125 million lbs./year, has been dropping, due to the decline in soap production. However, observers indicate that crude glycerine from fatty acid production is increasing. Thus, the outlook for natural glycerine seems to indicate that output will remain near 125 million lbs./year. It might show some gains, depending on fatty acid output.

Thus, growth of synthetic glycerine in the next few years will be tied in with the normal growth of glycerine, estimated at 3-4%/year.

OM's New Process: Although epichlorohydrin is reportedly one of

If you are interested in a

NEW PLANT LOCATION...

write for

FREE LITERATURE

WEST PENN POWER

an operating unit of the WEST PENN ELECTRIC SYSTEM

Area Development Department, West Penn Power Company
Cabin Hill, Greensburg, Pennsylvania CW-14

Yes, we are considering a new plant location.

Please send:

☐ Plant Location Services booklet
☐ Plant & Site folder
☐ FACTS about WESTern PENNsylvania

Company _____ Phone _____

Individual _____ Title _____

Address _____

City _____ Zone ____ State _____

Drying raw ore in a rotary dryer prior to grinding and screening is a new trend in the potash industry. This 5' x 40' rotary dryer built by STANDARD is processing crude ore at the National Potash Co., Carlsbad, N. M. A second Standard dryer is being installed.

This preliminary drying step facilitates full capacity operation of the total plant. STANDARD is equipped to design and manufacture any type of dryer required to meet special needs in industry. Our engineers can help you with drying problems. Write for our new informative dryer bulletin.

STANDARD STEEL CORPORATION

General Offices & Plant, 5010 Boyle Avenue, Los Angeles 58, California

Midwest Offices & Plant **LEADER IRON WORKS** *Decatur 10, Illinois*

(Division of Standard Steel Corporation)

ROTARY DRYERS · KILNS · COOLERS · ASPHALT PLANTS

BASIC PRODUCERS FROM MINE TO FINISHED PRODUCT

COPPER SULFATE

All Crystal Sizes and Powdered

We MINE COPPER and are basic producers of Copper Chemicals—our technical know-how and basic position in Copper is your assurance of exacting quality control, strict uniform consistency and a plentiful competitive supply.

We shall be pleased to send you complete information on TC COPPER SULFATE.

TC TENNESSEE CORPORATION

TENNESSEE CORPORATION

615-629 Grant Building, Atlanta 3, Georgia

the products to be manufactured in Olin Mathieson's new facilities, the company says it will not employ the "conventional" epichlorohydrin route, such as that used by Shell at Houston. However, OM has been working along these lines. (It was granted U.S. Patent 2,858,345 on an improved process for making glycerine from allyl chloride - epichlorohydrin.) But the firm insists that its glycerine process is not tied in with this patent, and that it is using a "new approach" that was developed in its Doe Run pilot plant.

But since OM has supplies of propylene and chlorine available at Doe Run, and since it will be selling epichlorohydrin, industry observers believe the company's new process must be some sort of a modification of the conventional epichlorohydrin process.

Europe's Needs Increase: The favorable net export balance now enjoyed in the U.S. has been a big factor in domestic glycerine's upswing. Most crude glycerine, formerly imported from Argentina, Philippines, etc., is now going to Europe, where glycerine is in short supply. Reason: for the past two years, Europe's accelerated use of alkyd resins, cellophane and other products using glycerine, plus increased syndet demands resulting in lower soap production, and synthetic glycerine production limited to only one producer, have all occurred simultaneously, leaving a huge vacuum for glycerine.

Currently, the only synthetic operation on the Continent is Shell's plant at Pernis, Holland. Estimated capacity is about 22 million lbs./year, with expansions now under way to raise it to 33 million lbs./year. Solvay et Cie. has also started construction of a plant at Tavaux, France. Estimated yearly output: 13 million lbs. A third company formed by three French companies—Nobel, Ugine and Progil —is now under consideration, and may start construction this year. Capacity will also be about 13 million lbs./year. And reports also indicated that Russia is shopping around for synthetic glycerine equipment, may well enter the synthetic picture.

But as synthetic glycerine capacity grows from today's 190 million lbs./-year to 230-260 million lbs. by '61, other producers will be hoping that Ed Block's consumption forecasts aren't over optimistic.

Epoxy Survey

Current U.S. epoxy capacity is about three times greater than sales, but this big capacity/demand imbalance will be pretty well whittled down by '63.

That's a major conclusion drawn from an exhaustive market survey of the epoxy industry just completed by a group at the Harvard Graduate School of Business Administration. Extensive research in preparation of the report included a survey of about 1,000 companies that manufacture, sell or use epoxies.*

Included in the report are these significant warnings to potential new producers of epoxy resins: existing producers still find it difficult to operate in the black, production of epoxies is "not as lucrative as some prefer to think," and market development and promotion will continue to be expensive.

Coatings—Top Outlet: Here's how the Harvard group believes epoxy sales to specific consuming industries will grow in the next few years:

Sales for coatings manufacture will reach a 48.4-million-lbs./year rate by '63, more than double the estimated 21.2 million lbs. sold in '58.

Sales to other consuming industries will grow to these levels by '63 (million pounds): tooling, 6.2 million; electrical, 8.9; laminating, 3.9; adhesives, 3.7; roads, flooring and construction, 12; boats, 2; pipes, 3.

Estimated sales to those industries were considerably lower in '58 (all figures in million pounds): tooling, 2.5; electrical, 2.4; laminating, 1.3; adhesives, 1.2; vinyl stabilizers, roads, flooring, construction, boats, pipes, etc., 0.4.

Total epoxy sales—about 29 million lbs. in '58—are expected to reach 88.1 million lbs. in '63. Although coating uses will continue to be by far the major outlet, they will account for a smaller percentage of total sales—55% by '63, compared with 73% in '58.

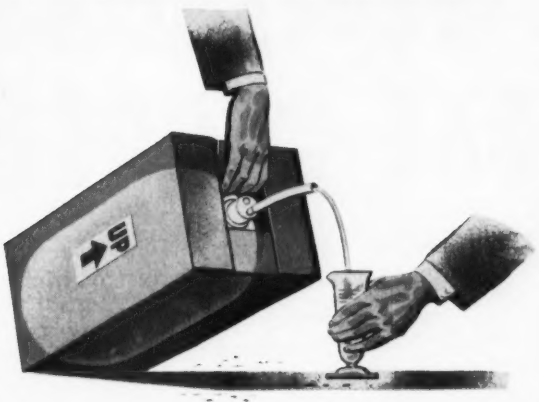
The Harvard report delves into many other aspects of the epoxy business: for example, it cites specific manufacturing applications and details of extensive cost and savings data from companies in each industry.

* The report, titled "Epoxy Resins: Market Survey and Users' Reference," is available from Materials Research, Box 363, Cambridge 39, Mass. Price: $18.50.

LUCIDOL
NOW OFFERS

- LUPERSOL® DDM
- t-BUTYL HYDROPEROXIDE-70
- LUPERSOL® DELTA
- t-BUTYL PERBENZOATE

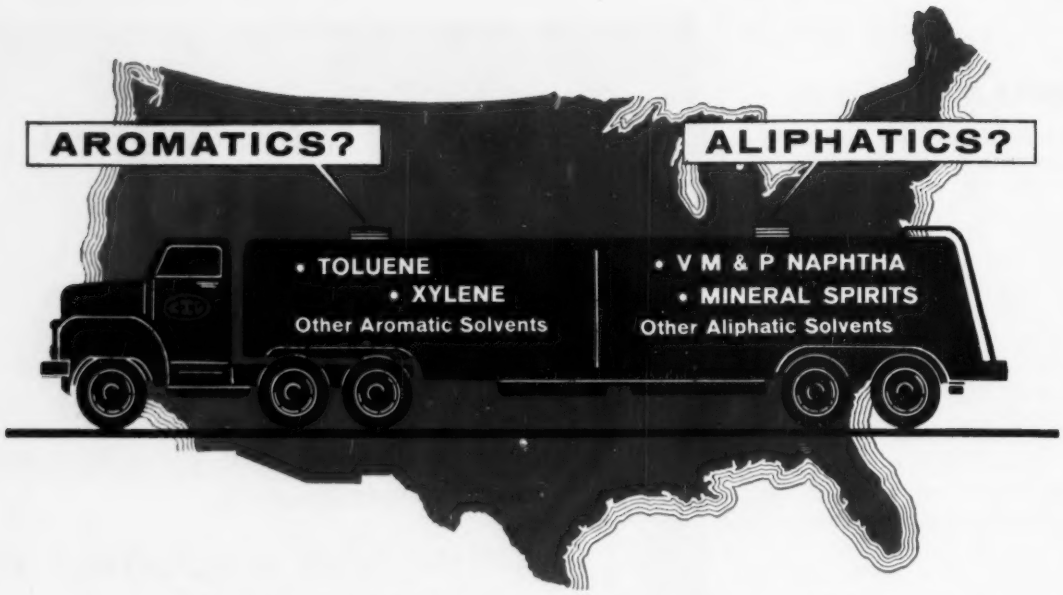
IN NEW FIVE GALLON
POUR SPOUT
PEROXY-POLY-PAK®



Here's a big step ahead in peroxide packaging. The Lucidol PEROXY-POLY-PAK is a fiber carton with a convenient hand hold housing a five gallon pour spout polyethylene bottle. Lightweight. A new high in pouring accuracy. Won't burp, drip or splash. No vermiculite required. No metal to contaminate contents. No blind corners to prevent complete draining. No leakers. Easily disposed of when empty by burning.

LUCIDOL DIVISION

WALLACE & TIERNAN INCORPORATED
1740 Military Road
Buffalo 5, New York



Now! Big Savings with

ESPESOL SOLVENTS'

ONE-SOURCE SUPPLY

Save on Freight Costs Smaller, multi-product orders are shipped in compartment lots by tank car, transport truck, barge, and ship and enjoy bulk rates.

Reduce Inventory Costs Less capital tied up in inventory because stock on hand is kept to minimum. Losses from evaporation and other causes greatly reduced. Fresh stock insured at all times.

Immediate Availability Eastern States' conveniently located terminals insure quick delivery to all points.

ESPECO

"Package" Delivery Ideal for Small Buyers Combining small lots into one shipment reduces purchasing agent's work, simplifies unloading and handling, and insures all products arriving at one time to minimize production delays.

Eastern States Petroleum & Chemical Corporation

Eastern States Petroleum and Chemical Corporation
P. O. Box 5008
Houston 12, Texas CW-81559

Please send additional information on Espesol's ONE SOURCE supply!

Name_____

Title_____

Company_____

Address_____

City_____ Zone____ State_____

Post Office Box 5008—Houston 12, Texas—Phone WAlnut 3-1651
Chicago Office: 1011 Lake St., Oak Park, Illinois, Phone VIllage 8-5410
New York Office: 10 Rockefeller Plaza, New York, Phone CIrcle 7-2520
Cleveland Office: 20800 Center Ridge Rd., Cleveland, Ohio, Phone EDison 3-018
Louisville Office: 4th and Broadway St., Louisville, Ky., Phone JUniper 3-7634
Atlanta Office: 3121 Maple Drive, N.E., Phone CEdar 3-3227
Los Angeles Office: 110 S. Euclid, Pasadena, Phone RYan 1-0278

U. S. Terminals:
Houston, Texas • Chicago, Illinois • East Liverpool, Ohio
Madison, Indiana • Brownsville, Texas • Savannah, Georgia
Carteret, New Jersey • Los Angeles, California

European Terminals:
Dordrecht (Rotterdam) Netherlands
Livorno (Leghorn), Italy

Aluminum Chemical Maker On the Move

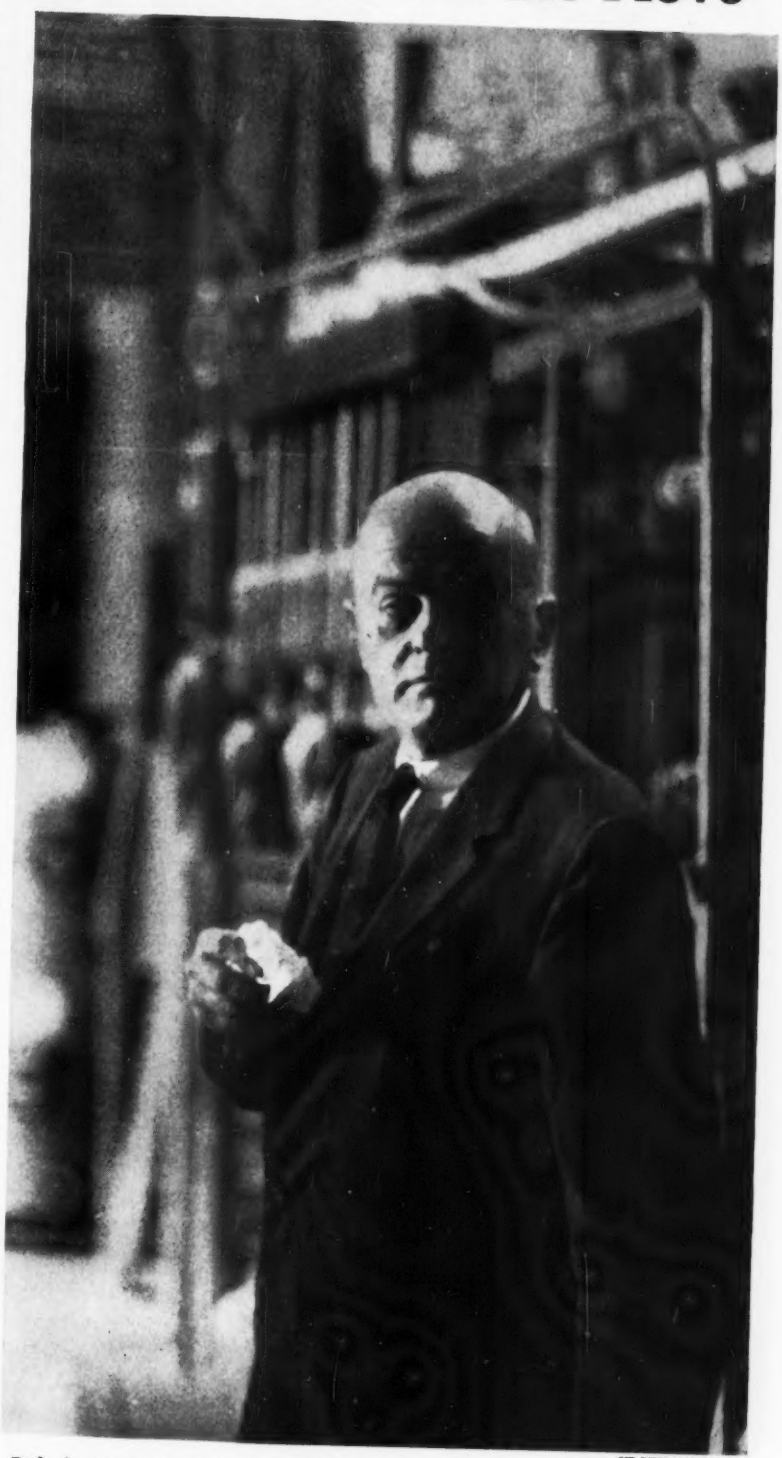
When 87,000 shares of Reheis Co., Inc., Class A stock were offered for sale late last month, Wall Streeters had to scurry to find out exactly what was being offered. The Berkeley Heights, N.J., company — although it is the country's largest supplier of the antacid aluminum hydroxide, and the antiperspirant aluminum oxychloride — is not well known to the general public. That's not surprising: most of the company's aluminum gel sales go to some 175 customers; the oxychlorides, to about 150.

After the prospectuses were issued, investors liked what they read. Initially offered at $5/share, the price in a few days had jumped to around $9⅞. Probably boosting the price was the company's statement that sales were up 15% for the first half of the year and should do even better in the second half, lifting the year's gross over the $2-million mark.

Base for Recognition: If its present plans come to fruition, the firm henceforth will be better known. President Daniel Reheis and Treasurer G. Wesley Joithe say they have embarked on a path that will broaden the product base, move the company out of its narrow confines of selling only to cosmetic and pharmaceutical manufacturers. New products are being developed for the food and coatings fields, another company was recently acquired, and contract manufacturing for other firms is being aggressively promoted.

The company traces its origin to about 1940. At that time, Daniel Reheis owned approximately 25% of Schofield-Donald Co., which was the U.S. distributor of magnesium salts manufactured by England's Washington Chemicals. A request for an aluminum hydroxide soluble in gastric acids prompted the company to put a man on the problem. Temporary research quarters were set up in Newark, N.J., a suitable product was developed, and production facilities were later installed at the same spot.

In '43, Schofield-Donald applied for a patent on the use of aluminum oxychloride as an antiperspirant, but investigation showed that I.G. Farben had already been granted patents. Al-



CW PHOTO—MARSHALL

Reheis Co.'s Daniel Reheis: He's moving into new fields.

ASTM GRADE

CETANE

99% + Purity

EXCLUSIVE

with

HUMPHREY-WILKINSON, Inc.

where high purity intermediates and research chemicals in commercial quantities are created to aid industrial progress, including (among others) the manufacture of alkenyl succinic acids and other aliphatic compounds.

WRITE TO-DAY for details and our H-W Catalog 108 without obligation.

HUMPHREY-WILKINSON, Inc.

Since 1947

Serving the Blue Book of Industry with Intermediates and Research Chemicals

201 Devine St., NORTH HAVEN, CONN.

"My business is BUSINESS —therefore CW fills my need"

That's the way one subscriber recently put it, as his reason for regularly reading CHEMICAL WEEK.

Your vernacular may not be quite as "eloquent"—but the help you can get from CW will not essentially be any different. After all, no other chemical publication brings you . . .

1. the combined efforts of 28 full-time "specialist" editors plus the benefits of business news correspondents in 75 U.S. and 61 foreign cities.
2. interpretations of the significance of the news—not merely undistilled reports.
3. news reports presented strictly from the management man's vantage point.

So if you're not a regular subscriber, why not start profiting from CW right now? To enter your subscription for one year @$3 (or three years @$5), write to Subscription Manager, CHEMICAL WEEK, 330 W. 42nd St., New York 36, N. Y.

though these were held by the Alien Property Custodian, Reheis Co. was able in '44 to begin pilot-plant operation under the German patents. Commercial production was undertaken in '46.

Reheis bought up the remaining shares of Schofield-Donald, changed its name to Reheis Co., Inc., by charter amendment in '47.

Converted Brickyard: The firm moved the same year. Reheis's Newark landlord became concerned about fumes raised in processing, asked Reheis to vent them elsewhere. Reheis bought a former brick factory in Berkeley Heights, N.J., on 16 acres (half of them under water) after its former owner found himself with a rapidly filling swimming hole instead of a quarry.

Reheis is currently the leading manufacturer of aluminum hydroxide gels in the U.S., claims to account for 50% of domestic production. Competitor J. T. Baker has an estimated 25% of the business, and three pharmaceutical houses — Schering, Warner-Chilcott and Wyeth — make the rest, mostly for captive use.

Reheis is also the nation's top producer of aluminum oxychloride, claims to produce about 70% of U.S. output. Though more expensive than the aluminum chlorides or sulfates (now more frequently used), the oxychloride, because of its less irritating nature, has proved to be a good seller, totting up 41% of total company sales. Sales would be even better, says Reheis, if some company developed a hands-off method of applying the material in gel form (which is more effective, since it has no oils or fats, as do the other forms, to interfere with its action).

With almost 95% of its sales dollar coming from sales of the gels and oxychloride, it's clear why Reheis is currently spending considerable research effort to broaden its product base. The company has food additives under development as well as a special type of coating.

Biological Diversification: But for the present, it is looking to its recent acquisition, Tec Chemical Corp., to provide diversification. Tec was purchased last April, along with two subsidiaries, The Techemical Sales Corp. and Quimica Tec del Uruguay, S.A. Reheis has lumped the three of them in Tec Chemical Division, which refines liver fractions, liver extracts, bile salts and pancreatic substance from Uruguayan pork and beef livers in its Stamford, Conn., processing plant.

In addition to the Tec holdings in Uruguay, Reheis will soon have additional facilities in South America. Sometime this fall or winter, Reheis will start operating a crude liver extract plant in Passofundo, Brazil. This new operation, along with the Tec Chemical Division, will function under Reheis International S.A., a Panamanian corporation formed as a holding company for all of Reheis's foreign ventures.

In whatever direction the company may ramify, Reheis will be on hand. He has a firm grip on 51% of the company's stock, says he won't dilute his equity beyond this for some time to come.

Greige Shows Gains

California Ink Co. (San Francisco) has issued its Colortrend Report for the first half of '59. The report, based on sales of tubes of colorants to the paint industry, shows these trends in paint colors:

Moving up most rapidly in popularity were blues, greige and corals. Greige (a word that combines gray and beige and that is also related to the French word grège, meaning raw or unbleached) includes grays, gray-beige, sandy-beige and off-whites.

Basic yellows, popular in '55 and '56, continued to drift downward and yellow-greens and chartreuse are almost out of the picture.

Ranking of the 11 major color families in order of popularity: beige and brown, blues, pinks, blue-greens, greens, yellows, peaches and corals, off-white, roses and taupes, grays, yellow-greens.

Week-Long Monday

Monday's no longer washday: home laundering has become a part of daily housekeeping. That's one of the findings for specialty makers to heed in a recent survey of home laundering habits by the American Home Laundry Manufacturers' Assn. Highlights:

Almost 90% of the respondents said they wash laundry on two or more days each week. Over 20% use their laundry equipment as much

as six or seven times weekly; four days is the average.

Those with automatic equipment wash an average of eight loads of laundry each week. About 25% do more than 10 loads weekly, 25% do less than five.

About 70% of the respondents said they prefer to have washer and drier in a first-floor location — the kitchen or a utility room. The basement, however, is still the spot where most (37%) automatic washers are located; 27% are in the kitchen.

Specialty Import: The survey results seem to indicate that packaging of laundry items should be oriented toward more frequent handling, easy storage and accessibility and resistance to kitchen steam.

PRODUCTS

Rug Backing Latex: Koppers Co. (Pittsburgh) has developed a latex for rug backing that requires no vulcanization and eliminates the accelerator system. The latex (60% styrene-40% butadiene) is called Dylex K-42. Elimination of the accelerator system and sulfur compounds is said to have reduced odor problems.

•

Grinding Coolant: A soluble grinding coolant with permissible dilution ratios ranging up to 150:1 has been developed by Shear-Speed Chemical Products (7125 East McNichols Rd., Detroit). It's tradenamed A-1000, is intended for grinding operations on carbon and tool steels, cast iron and titanium.

•

Vinyl Acrylic Latex: The Resin Division of National Starch and Chemical Corp. (New York) is now offering Resyn 2700, a vinyl acrylic resin latex for floor polish formulating. It has an average particle size of 0.05 microns, weighs 8.9 lbs./gal. and has a solids content of 35%.

•

Aerosol Cleaning Fluid: Afta Solvents Corp. (470 West 128th St., New York 27) has placed its Push-Button Spot Remover in national distribution. It comes in a 12-oz. aerosol, sells for $1.98.

•

Pesticide Carrier: Calcium Carbonate Co. (520 Fourth St., Quincy, Ill.) now has an improved form of its CCC-Diluent. The new product is

SODIUM BICARBONATE, U.S.P.
Specialized Grain Sizes
•
MONOHYDRATE of SODA
•
CON SAL
CONCENTRATED CARBONATE
OF SODA CRYSTALS
Technical Service
CHURCH & DWIGHT CO., Inc.
70 Pine Street New York 5, N.Y.
Phone Digby 4-2181

If you use...
COPPER HYDRATE
And want...
Top quality, personalized service, fast delivery
It pays to call on...
BERKSHIRE CHEMICALS, Inc.
630 Third Ave., New York 17, N.Y. Telephone: YUkon 6-8855
SALES OFFICES: New York • Chicago • Philadelphia • Cleveland • Boston
Pittsburgh • San Francisco

CHEMICAL WEEK • ADVERTISERS' INDEX

August 15, 1959

ALLIED CHEMICAL CORP., GENERAL CHEMICAL DIV. ..... 4th cover
Agency—Kastor, Hilton, Chesley, Clifford & Atherton, Inc.

ALLIS CHALMERS 63
Agency—Klau Van Pietersom-Dunlap, Inc.

BALTIMORE & OHIO RAILROAD 46
Agency—Richard A. Foley Adv.

BECCO CHEMCAL DIV. OF FOOD MACHINERY & CHEMICAL CORP. 49
Agency—John Mather Lupton, Inc.

BERKSHIRE CHEMICALS INC. 83
Agency—Marstellar, Rickard, Gebhardt & Reed, Inc.

BIRD MACHINE CO. 22
Agency—Walter B. Snow & Staff, Inc.

BLOCKSON CHEMICAL CO. 7
Agency—Wm. Balsam Adv.

BROWN CO. 37
Agency—J. M. Mathes, Inc.

CABOT, GODFREY L., INC. ..... 3rd cover
Agency—Larcom Randall Adv. Inc.

CELANESE CORP. OF AMERICA 33
Agency—Ellington & Co., Inc.

CHEMSTRAND CORP. 76
Agency—Robert Luckie & Co., Inc.

CHIPPEWA PLASTICS, INC. 40
Agency—Kerker, Peterson, Hixon, Hayes, Inc.

CHURCH & DWIGHT CO., INC. 83
Agency—J. Walter Thompson Co.

COMMERCIAL SOLVENTS CORP. 17
Agency—Fuller & Smith & Ross, Inc.

CONTINENTAL CAN CO. 53
Agency—Batten, Barton, Durstine & Osborn, Inc.

DISTILLATION PRODUCTS INDUSTRIES, DIV. OF EASTMAN KODAK CO. 42
Agency—The Rumrill Co., Inc.

DIXON CHEMICAL & RESEARCH INC. .. 59
Agency—Ray Ellis Adv.

DOW CHEMICAL CO., THE 69
Agency—MacManus, John & Adams, Inc.

EASTERN STATES PETROLEUM & CHEMICAL CORP. 80
Agency—Erwin Wasey, Ruthrauff & Ryan, Inc.

EASTMAN CHEMICAL PRODUCTS CO. .. 50
Agency—Fred Wittner Co.

EMERY INDUSTRIES, INC. 43
Agency—Farson, Huff & Northlich, Inc.

ESSO STANDARD OIL 56
Agency—McCann-Erickson, Inc.

FMC CHEMICALS & PLASTICS DIV., FOOD MACHINERY & CHEMICAL CORP. 12
Agency—The McCarty Co., Adv.

GENERAL PUBLIC UTILITIES CORP. 52
Agency—Goold & Tierney, Inc.

GLYCO CHEMICALS CORP. 76
Agency—G. M. Basford Co.

GOODYEAR TIRE & RUBBER CO. 1
Agency—Kudner Adv. Agency

GULF OIL CORP. 2
Agency—Ketchum, MacLeod & Grove, Inc.

HERCULES POWDER CO. 8
Agency—Fuller & Smith & Ross, Inc.

HOOKER CHEMICAL CORP. 21
Agency—The Rumrill Co.

HUMPHREY-WILKINSON, INC. 82
Agency—E. J. Lush, Inc.

ILLINOIS WATER TREATMENT CO. 15
Agency—Cummings, Brand & McPherson, Adv.

INDUSTRIAL PROCESS ENGINEERS 47
Agency—Scheck Adv. Agency

JEFFERSON LAKE SULPHUR CO. 72
Agency—Bauerlein Adv., Inc.

KAISER ALUMINUM & CHEMICAL CORP. 60
Agency—Young & Rubicam, Inc.

KRAFT BAG CO. 5
Agency—Arthur A. Judson, Inc.

LILLY & CO., ELI 74
Agency—Gardner Advertising Co.

LINDE CO., DIV. OF UNION CARBIDE CORP. 55
Agency—J. M. Mathes, Inc.

LUCIDOL DIV. WALLACE & TIERNAN, INC. 79
Agency—Barber & Drullard, Inc.

McGRAW-HILL BOOK CO. 64

METASAP CHEMICAL CO. SUB. OF NOPCO CHEMICAL CO. 54
Agency—Gray & Rogers Adv.

MICHIGAN CHEMICAL CORP. 66
Agency—Wesley Aves & Associates

MINERALS & CHEMICALS CORP. OF AMERICA 44-45
Agency—Richardson, Thomas & Bushman, Inc.

NATIONAL LEAD CO., THE 4
Agency—Marschalk & Pratt Co., Div. of McCann-Erickson, Inc.

NORTON CO. 9
Agency—James Thomas Chirurg Co.

OLIN MATHIESON CHEMICAL CORP. 38
Agency—Doyle, Kitchen & McCormick, Inc.

ROHM & HAAS CO. 14
Agency—Arndt, Preston, Chapin, Lamb & Keen, Inc.

SEABOARD AIR LINE RAILROAD 72
Agency—The Caples Co.

SHARPLES CORP., THE 6
Agency—Renner, Inc.

SHELL CHEMICAL CORP. 18
Agency—J. Walter Thompson Co.

STANDARD STEEL CORP. 78
Agency—The McCarty Co.

TENNESSEE CORP. 78
Agency—Crawford & Porter, Inc.

TEXACO, INC. 11
Agency—G. M. Basford Co.

TEXAS GULF SULPHUR CO. 16
Agency—Sanger Funnell, Inc.

TITANIUM ALLOY MFG. DIV. NATIONAL LEAD CO. 34
Agency—Comstock & Co.

UNION BAG-CAMP PAPER CORP. 48
Agency—Smith, Hagel & Knudsen, Inc.

UNION CARBIDE CHEMICALS CO., DIV. OF UNION CARBIDE CORP. 39
Agency—J. M. Mathes, Inc.

U. S. STEEL CORP. U. S. STEEL PRODUCTS DIV. 10
Agency—Batten, Barton, Durstine & Osborn, Inc.

U. S. TESTING CO. 36
Agency—W. L. Towne Co., Inc.

VITRO ENGINEERING CO. 73
Agency—Molesworth Associates

WEST PENN POWER 77
Agency—Fuller & Smith & Ross, Inc.

WESTVACO CHLOR-ALKALI DIV. OF FOOD MACHINERY & CHEMICAL CORP. ..... 2nd cover
Agency—James J. McMahon Adv.

WYANDOTTE CHEMICAL CORP. 65
Agency—Brooke, Smith, French & Dorrance, Inc.

tracers SECTION
(Classified Advertising)
F. J. Eberle, Business Mgr.

CHEMICALS: Offered/Wanted 85
CONTRACT WORK WANTED 85
EMPLOYMENT 85
EQUIPMENT: Used/Surplus New For Sale 85
MANAGEMENT SERVICES 85
SELLING OPPORTUNITIES: Offered/Wanted 85

ADVERTISING STAFF

Atlanta 3 ..... Michael Miller, 1301 Rhodes-Haverty Bldg., JAckson 3-6951

Boston 16 .. Paul F. McPherson, 350 Park Square Building, HUbbard 2-7160

Chicago 11 ..... Alfred D. Becker, Jr., R. J. Claussen, 520 N. Michigan Ave., MOhawk 4-5800

Cleveland 13 .... H. J. Sweger, Duncan C. Stephens, 1164 Illuminating Bldg., 55 Public Square, SUperior 1-7000

Dallas 1 .... Gene Holland, Gordon Jones, The Vaughn Bldg., 1712 Commerce St., Riverside 7-5117

Denver 2 ..... J. Patten, 1740 Broadway, ALpine 5-2981

Detroit 26 ..... H. J. Sweger, Jr., 856 Penobscot Bldg., WOodward 2-1793

Frankfurt/Main ..... Michael R. Zeynel, 85 Westendstrasse, Germany

London E.C. 4 .. E. E. Schirmer, McGraw-Hill House, 95 Farringdon St., England

Los Angeles 17 ..... Robert Yocom, 1125 West Sixth St., HUntley 2-5450

New York 36 ..... Knox Armstrong, B. A. Johnson, P. E. McPherson, Charles F. Onasch, L. Charles Todaro, 500 5th Ave., OXford 5-5959

Philadelphia 3 .. William B. Hannum, Jr., 6 Penn Center Plaza, LOcust 8-4330

Pittsburgh 22 ..... Duncan C. Stephens, Room 1111 Henry W. Oliver Bldg., EXpress 1-1314

San Francisco 4 .... William C. Woolston, 68 Post St., DOuglas 2-4600

St. Louis 8 ..... R. J. Claussen, 3615 Olive St., Continental Bldg., JEfferson 5-4867

SPECIALTIES

said to cut down fines about 25% without increasing the screen size of the material (98% will pass a 200-mesh screen). The new diluent (a finely ground neutral limestone, surface coated with an insoluble calcium soap complex) is also said to provide improved toxicant exposure.

•

Filter-Fabric Cements: Technical Fabricators, Inc. (136 Washington Ave., Nutley, N.J.) has two new patching cements for filter fabrics. Vicel, a solvent-type cement, is for patching tears and holes in press cloths, centrifuge bags and rotary vacuum filter cloths. It dries by evaporation, leaving a film of acrylonitrile-vinyl chloride copolymer. It has good adhesion to spun staple synthetic fibers and cotton fibers. Nycel, is a two-component epoxy cement with tensile shear strength of 2,000 lbs./in. It's intended for use on centrifuge bags, press cloths and dust collection bags. Best adhesion is claimed when it's used with monofilament yarn fabrics.

•

Silicone Rubbers: General Electric Co.'s Silicone Products Dept. (Waterford, N.Y.) is offering two new room-temperature vulcanizing silicone rubbers. RTV-160 is designed for applications requiring somewhat greater resiliency than offered by RTV-120. Both are sponge compounds for use as void filling, cushioning and vibration damping.

•

Wood Finish: Watco-Dennis Corp. (Santa Monica, Calif.) has developed a natural wood finish, says it is "the first superpenetrating oil and resin process developed for oil, flat and Danish-type finishes that is nonflammable and nontoxic." The finish, called Watco, polymerizes within the wood itself, leaves no surface coating or film.

•

Dry Bleach: Du-Rite Sales Co. (Brentwood, Md.) is offering a dry household bleach, called Du-Rite, based on Du Pont's Oxone. It is now being sold in the Baltimore area but the firm plans to give it wider distribution.

•

Detergent Base: Sole Chemical Corp. (27 East Monroe St., Chicago) is marketing a 100% tall oil ethoxylate. Called Sole-Terge TOE, it can be used as a base for low-suds, heavy-

duty industrial cleaners, automatic laundry and detergent formulations.

•

Pearlier Pearl: The Mearl Corp. (41 East 42nd St., New York) has developed a synthetic pearl pigment that it claims has greater brilliance than the best grades of natural pearl essence. It's called Nacromer Z, can be incorporated into various thermoplastics or used as a coating material.

•

Adhesive Applicator: B.B. Chemical Co. (784 Memorial Dr., Cambridge, Mass.) is offering a pressure-fed applicator that delivers solvent adhesives through a hose to a brush. It operates on 20-psi. pressure; output pressure can be regulated to provide optimum adhesive flow.

•

Automated Bug Bomb: An automatic insecticide spray-dispenser has been developed by Fairfield Chemicals (New York) and Syncro-Mist Controls, Inc. (New York). The unit, called Syncro-Mist, releases insecticide spray into the air at 15-minute intervals. About the size of a cigar box, the unit weighs 5½ lbs., operates on standard ac. current, is said to control flying insects in a 6,000-cu-ft. area. A 12-oz. aerosol—designed for pyrenone-type insecticides—lasts 34 days, operating 24 hours/day. Price: $26.50.

•

Steel Filling Compound: Woodhill Chemical Co. (1390 East 34th St., Cleveland) has introduced Liquid Steel, a steel filling compound. It's used for repairing holes and imperfections in metal castings, sealing and soldering leaks in pipes, radiators, gutters and car dents.

•

Gelling Agents: Nuodex Products Co., division of Hesden Newport Chemical Corp. (New York), has a line of aluminum stearate soaps tailored to gel mineral oils to form various greases.

•

Packaging Adhesive: Java Latex & Chemical Corp.'s (1713 West Farms Rd., New York) Javatex, an adhesive, is said to adhere polyethylene to wax paper.

•

Dipping Compound: Houghton Labs. (Olean, N. Y.) now offers Hysol 10-80, an epoxy dipping compound. It meets temperature and immersion specs for Mil-C-11015A.

Tracers

TO THE CHEMICAL PROCESS INDUSTRIES

Published: each Saturday—closes 11 days in advance.

Rate—$3.00 per line ($1.50 per line for position wanted ads), minimum 3 lines. Allow 5 average words as line; Count one half line for box number.

ADDRESS BOX NO. REPLIES TO: Box No. Classified Adv. Div. of this publication. Send to office nearest you.
NEW YORK 36: P. O. BOX 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.

POSITIONS VACANT

Opening for research and development chemist experienced in manufacture and use of wax compounds, wax emulsions, resins, polymer dispersions, cleaners and household chemicals in a manufacturing company laboratory located in the Middle West. Apply by letter, enclosing photograph and giving full details of education and experience. All replies will be confidential. P-1975, Chemical Week.

Polymer Chemist—Openings now exist for a chemist with experience in organic or physical basic work on polymers. PhD is desired or the equivalent in work experience. Permanent location in Akron, Ohio. Reply should give details of education, research background and salary required. Liberal company benefits including fully paid life insurance and hospitalization. All letters completely confidential and will be answered promptly. O. D. Taliaferro, Salaried Personnel—R M P The Goodyear Tire & Rubber Company, 1144 East Market Street, Akron 16, Ohio.

Stanford Research Institute offers challenging employment opportunities in chemical marketing research to Chemical Engineers or Chemists with 5 years of broad-line industrial experience in commercial chemical development, market research, or economic feasibility studies. Advanced technical or business degree preferred. Top level industry contacts, authorship of professional articles, and foreign travel possibilities complement an atmosphere conducive to development of personal competence. For information, send resume to Economics Employment Coordinator, Stanford Research Institute, Menlo Park, California.

Wanted: Specialty chemist experienced in waxes, insecticides, cleaners, etc. Must be imaginative and capable of working independently of others; develop new products and improve old ones; by fast growing chemical specialty manufacturer located in central Florida. Address reply to P-2323, Chemical Week.

POSITIONS WANTED

Sales Management position in chemical or allied by aggressive young man, married. Several years successful experience dealing with all types industry in Southwest, for leading chemical manufacturer. Prefer Southwest or Western U.S.A. PW-2309, Chemical Week.

Industrial Chemical Sales, Inside or Outside. 3½ years experience selling industrial chemicals in Metropolitan New Jersey. 10 years experience as Office Manager for filtration equipment manufacturer. Married with family. Prefer Metropolitan New Jersey-New York area. Mr. C. J. Haight, 931 Revere Drive, Hillside, New Jersey. Telephone Elizabeth 2-1933.

European technical representative. American chemical engineer in Europe three years seeks position doing technical scouting or chemical market research. Unusual American and European experience in this field. French and German. PW-2297, Chemical Week.

Employee Relations Manager. Proven record for maintaining industrial peace. Experienced, trained, progressive. Employed but seeking more challenging opportunity. PW-2338, Chemical Week.

Sales Management—Diversified experience of 18 years in the industrial organic chemical industries. Background in product development, pilot plant, technical service, sales development and currently, technical sales. Creative and administrative abilities, executive level contacts, aggressiveness and other assets offered a progressive organization. B.S. in Chem. Eng. Family. PW-2327, Chemical Week.

SELLING OPPORTUNITY AVAILABLE

Chemical jobber upstate New York, fine well-established line Industrial Chemicals, requires services experienced Industrial Chemical Salesman. Liberal salary, commissions, expenses. Car furnished. Opportunity advancement. Chance to buy into company over the years. If experienced, send resume to SW-2107 Chemical Week. Our employees know of this advertisement.

MANAGEMENT SERVICES

Clark Microanalytical Laboratory—CH. N. S. Halogen, Fluorine, Oxygen, Alkoxyl, Alkimide, Acetyl, Terminal Methyl, etc. by specialist in organic microchemical analysis. P.O. Box 17, Urbana, Ill., Empire 7-8406.

Wisser And Cox—Engineers-Geologists. Mineral raw materials from exploration to marketing. 55 New Montgomery-San Francisco, California. YUkon 2-1436. cables: GEOLOG.

CONTRACT WORK WANTED

Air Milling—extremely fine particle size in the low micron range. Can handle heat sensitive materials. Experienced personnel-lab control. Storage and drop shipments arranged. Excellent transportation for domestic or export. Central Chemical Corporation, Processing Department, Box 310, Hagerstown Maryland REgent 3-4700.

One of Britain's largest and best known steel fabricators desires to contact American contractors to the Oil and Chemical Industries interested in having their specialized products manufactured under license in the United Kingdom. All facilities available for manufacture and machining fabrications up to 75 tons each. Please contact J. S. Moffat, Sales Director, Weldall & Assembly Ltd., 10 Norfolk Street, London, W.C.2.

BUSINESS OPPORTUNITY

Chemical Specialties business wanted. Seek to purchase all or controlling interest of mfrg or jobbing busn now doing $100,000 or more annual vol. Industrial, institutional, janitorial trade preferred. Loc Metro NY, NJ area. Submit full details first letter. All replies strictly confidential. BO-2246, Chemical Week.

FOR SALE

$3,000,000 Liquidation-Chemical Plant at Orange, Texas. Type 316 Stainless Steel Tanks, Kettles, Heat Exchangers, Columns, Stills, Crystallizers Centrifugals, Pumps, Valves, etc. Wonderful Values. Send for list. Perry Equipment Corp., 1415 N. 6th St., Philadelphia 22, Pa.

1—7'6" x 60' long Rotary Kiln or Dryer, ½" welded shell. Complete. Perry Equipment Corporation, 1415 N. Sixth St., Philadelphia 22, Pa.

This Tracer Section can be used whenever you are looking for or offering Equipment, Plants Supplies, Chemicals, Opportunities, Special Services. The rates are low—just call or write Classified Advertising Division, Chemical Week. P.O. Box 12, N. Y. 36, N. Y, LOngacre 4-3000.

CHEMICALS WANTED

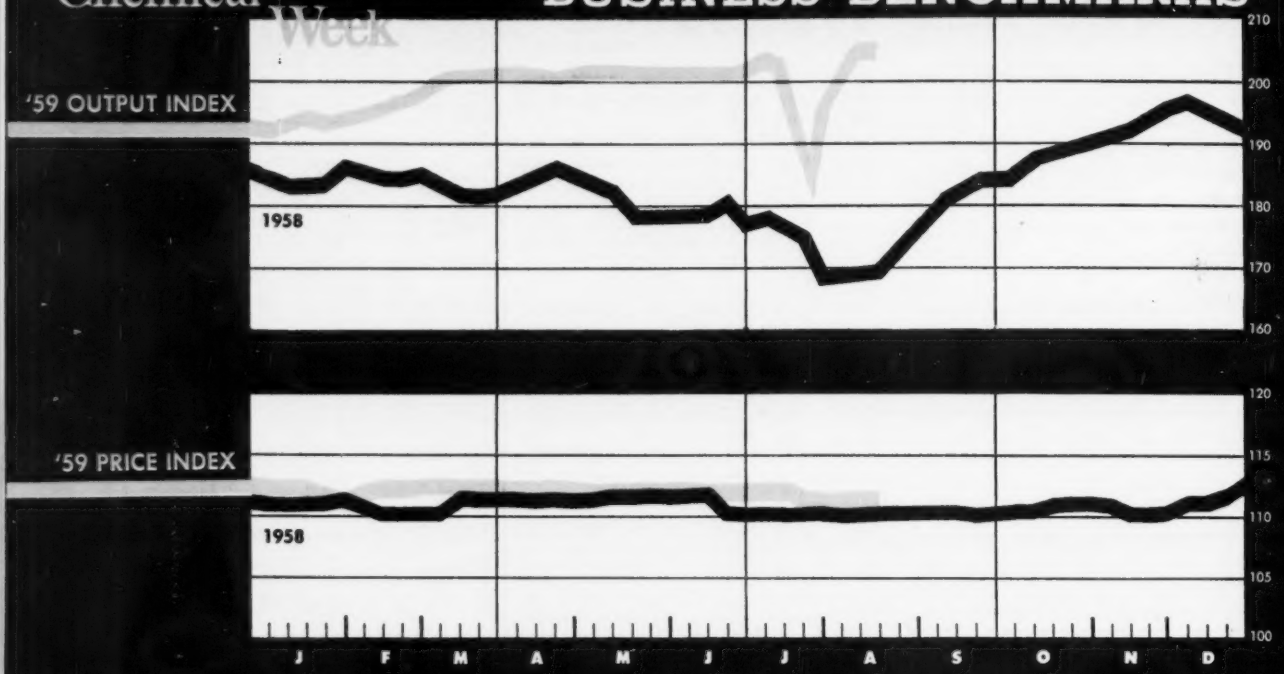
Surplus Wanted—Chemicals, Pharmaceuticals, Oils, Acids, Plasticizers, Resins, Dyes, Solvents, Pigments, Etc. Chemical Service Corporation, 96-02 Beaver Street, New York 5, N. Y. HAnover 2-6970.

MISCELLANEOUS

To Employers Who Advertise for Men: The letters you receive in answer to your advertisements are submitted by each of the applicants with the hope of securing the position offered. When there are many applicants it frequently happens that the only letters acknowledged are those of promising candidates. (Others do not receive the slightest indication that their letters have even been received, much less given any consideration.) These men often become discouraged, will not respond to future advertisements and sometimes even question if they are bona fide. We can guarantee that Every Advertisement Printed Is Duly Authorized. Now won't you help keep our readers interested in this advertising by acknowledging every application received, even if you only return the letters of unsuccessful applicants to them marked say, "Position filled, thank you." If you don't care to reveal your identity, mail them in plain envelopes. We suggest this in a spirit of helpful co-operation between employers and the men replying to Positions Vacant advertisements. Classified Advertising Division, McGraw-Hill Publishing Company. "Put Yourself in the Place of the Other Fellow."

Chemical Week

BUSINESS BENCHMARKS

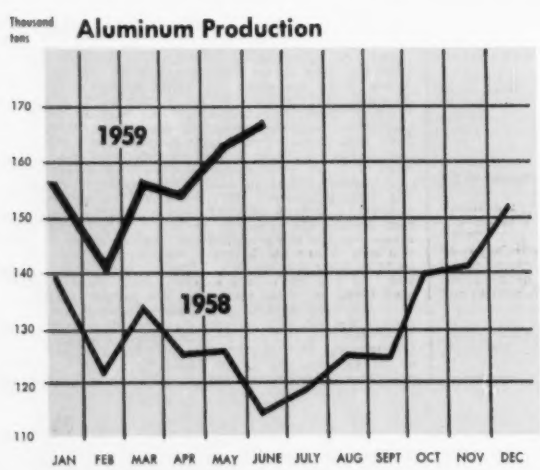


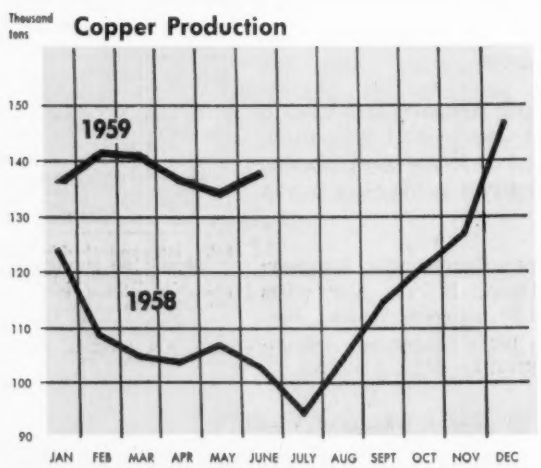
AUGUST 15, 1959

WEEKLY BUSINESS INDICATORS	LATEST WEEK	PRECEDING WEEK	YEAR AGO
Chemical Week output index (1947-49=100)	205.0	205.0	171.5
Chemical Week wholesale price index (1947=100)	110.8	110.9	110.7
Stock price index (12 firms, Standard & Poor's)	61.60	61.60	44.18
Steel ingot output (thousand tons)	332	345	1,586
Electric power (million kilowatt-hours)	13,775	13,577	12,619
Crude oil and condensate (daily av., thousand bbls.)	6,808	6,855	6,545

MONTHLY INDICATORS—Production (1947-49=100)	LATEST MONTH	PRECEDING MONTH	YEAR AGO
All manufacturing	159	156	134
Nondurable goods manufacturing	146	144	129
Durable goods manufacturing	172	169	139
Chemicals and allied products	210	209	181
Industrial chemicals	237	236	187
Petroleum and coal products	143	141	131

CHEMICAL CUSTOMERS CLOSE-UP





CAB-O-SIL®?

Less than 2% Cab-o-sil has been added to the plastic at right as a thixotropic agent. Note how Cab-o-sil solution shears — saves dipcoating dollars by eliminating costly drainage time. Super-fine Cab-o-sil (11.1 million billion particles per gram) is used in amazingly low concentrations.

As a thixotropic agent in liquid resin systems, Cab-o-sil — the super-fine airborne silica — is unmistakably at the head of its class.

Here are 4 important reasons why: 1. A little bit of Cab-o-sil saves a lot of money in dipcoating because it virtually eliminates costly drainage time. Little or no draining of the coated unit is required. **2.** It permits you a wider choice of plasticizers or solvents since flow properties can be more easily regulated. **3.** It is very easily dispersed and remains thoroughly compatible with the liquid phase of any resin system. **4.** It lets you maintain clear, bright colors, since it has little or no effect on the tinting strength of coloring pigments.

The immense usefulness of this airborne silica — with its super-fine particle size, its chemical inertness, its uniformly high purity — is still only beginning to be explored. Here are just a few of the ways Cab-o-sil is being used today:

CABOT

USES:

- **Thixotropic, thickening, gelling agent** — lubricating oils, greases, polyester resins, epoxy resins, plastisols, plastigels, organosols
- **Suspending agent** — paints
- **Flatting agent** — varnishes, lacquers, organosols, plastisols
- **Reinforcing agent** — rubber, silicone, latex film
- **Anticaking agent** — sulfur, insecticides
- **Antislip agent**—solvent-base floor waxes
- **Precoating material** — reproduction paper
- **Low temperature thermal insulation**
- **Pharmaceuticals and cosmetics** — **(See bulletin #cpha-1)**

FREE CAB-O-SIL® sample and bulletins.

Minerals & Chemicals Div., CW **GODFREY L. CABOT, INC.,** 125 High Street, Boston 10, Mass.

Please send ☐ copy of bulletin #cpla-2
☐ free Cab-o-sil sample for testing
☐ complete technical data on Cab-o-sil for .....(field or industry)

NAME.....

TITLE.....

COMPANY.....

ADDRESS.....

.....

Please send CAB-O-SIL sample and:

( ) General Properties, Functions and Uses (#cgen-1)
( ) Cab-o-sil in the Rubber Industry (#crub-1)
( ) Cab-o-sil in Butyl Rubber (#crub-2)
( ) Cab-o-sil in the Lubricating Grease Industry (#cgre-1)
( ) Aqueous Dispersions of Cab-o-sil (#cmis-2)
( ) A Flatting Agent for Varnishes (#cpai-3)
( ) Cab-o-sil in the Reproduction Paper Industry (#cpap-1)
( ) Cab-o-sil in Polyester-Glass Reinforced Plastics (#cpla-1)
( ) Cab-o-sil in the Plastics Industry (#cpla-2)
( ) Cab-o-sil in Automobile Polishes (#cpol-1)
( ) Cab-o-sil in Pharmaceuticals and Cosmetics (#cpha-1)

ATLANTA, GA.
CHILLICOTHE, O.
CLEVELAND, O.
DENVER, COLO.
DETROIT, MICH.
E. ST. LOUIS, ILL.
HOPEWELL, VA.
JACKSONVILLE, FLA.
JOHNSONBURG, PA.
KALAMAZOO, MICH.
KENNEWICK, WASH.
MACON, GA.
MARCUS HOOK, PA.
MENASHA, WIS.
MIDDLETOWN, O.
MONROE, LA.
NEW ORLEANS, LA.
PINE BLUFF, ARK.
PORT ST. JOE, FLA.
SAN FRANCISCO
(PORT CHICAGO), CALIF.
SAVANNAH, GA.
TACOMA, WASH.
VANCOUVER, WASH.
WISCONSIN RAPIDS, WIS.

When it comes to

ALUM

liquid or dry

Come to

GENERAL CHEMICAL

As one of America's primary producers of aluminum sulfate, General Chemical has established a network of strategically located plants from coast to coast. Those listed above can provide you with a close, convenient source of supply. These modern plants are located in the heart of active consuming areas. They facilitate service to you. They save transportation costs. In addition, our chain of warehouses across the country makes stocks of dry aluminum sulfate readily available everywhere. Write or phone today for further information on how these facilities can be put to work for you.

Basic to America's Progress

Allied Chemical

GENERAL CHEMICAL DIVISION

40 Rector Street, New York 6, N. Y.